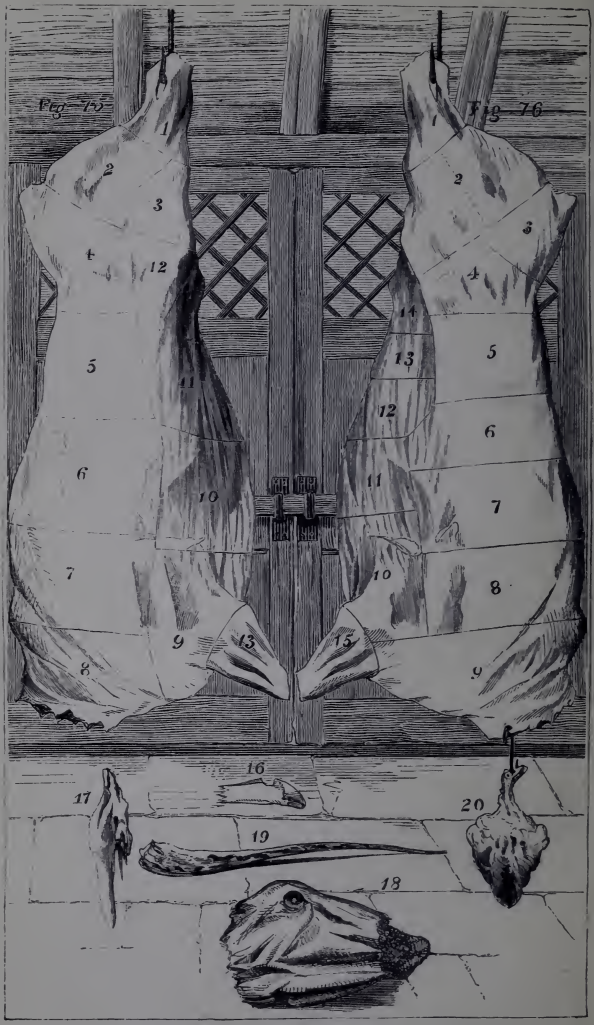
THE

ENGLISH HOUSEKEEPER'S BOOK.



TOWN AND COUNTRY METHODS OF CUTTING UP THE OX.

THE

BRITISH HOUSEKEEPER'S BOOK:

BEING PRACTICAL ADVICE

FOR

PURCHASING THE SUPPLIES OF THE HOUSE.

AND FOR

BREWING, BAKING, PRESERVING, AND PICKLING AT HOME.

TO WHICH ARE ADDED DIRECTIONS FOR THE

MANAGEMENT OF THE DAIRY, POULTRY-YARD, LAUNDRY, AND CELLAR.

BY

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ASSISTED BY A COMMITTEE OF LADIES,

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With Numerous Illustrations.

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PREFACE.

ENCOURAGED by the success which has attended the publication of *A Manual of Domestic Economy* as a whole, it has been decided to issue it in parts; and, in conformity with the wish expressed by several of my friends, in a larger and more legible type. It must be obvious to every one, that the mass of matter contained in the original volume could not be afforded at the present price if printed in a bolder type; but, nevertheless, it will now be procurable in a form suited to any eyes but those wholly unfitted for reading, at a price not much higher than before.

In the present part, containing the various methods of *supplying the house* with its necessaries of life, the processes of *baking, brewing, pickling,* and *preserving* are fully described; and it will be found that these departments are considerably enlarged. Together with these, the management of the Dairy, Poultry-yard, Cellar, and Laundry, is fully entered on, and in fact every information is afforded which can be required by the economical housekeeper, except that comprised in the

department of *Cookery*, which now forms the subject of a separate volume, recently published.* These two may be said to form about one-half of the Manual of Domestic Economy, the remainder being made up of the division which treats of *the construction and furnishing of the house*, and of that which enters upon the consideration of *the management of its inmates*, and the various questions connected with *our social duties*.

Since the time when the calculations with regard to prices were made, flour has fallen considerably in the market, while meat and grocery have fluctuated in the opposite direction; but, on the whole, little occasion will be found for any alteration. I may here take occasion to remark, that some fault has been found with the scale of prices as too low; but it must be remembered that the expenditure was offered as that which *can* be reached by the height of good management, and not as being capable of attainment by every inexperienced housekeeper. Nevertheless, as we are all too apt to fall short of our intentions, it is desirable to hold out a model which is somewhat superior to the average capacities of mankind; and, as no rising artist should be advised to copy a bad picture because he is unable closely to imitate a good one, so, *provided it can be carried out in practice*, a perfect system of house management should be held forth for imitation, even if it is plain that nine-tenths of mankind are incapable of coming up to its standard. At the same time I assert, and

can prove by good evidence, that no single calculation of expenditure has been introduced which is not verified by actual experience; so that, though the young housekeeper need not feel dismayed at being unable to reach the height of good management which is set down, yet at the same time it must not be forgotten that it is founded in fact, and a true and real picture of what has been done, and may be done again.

J. H. W.

London, *May*, 1857.

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* The English Cookery Book, uniting a good style with economy, and adapted to all persons in every clime; with unpublished receipts in daily use by private families. Price 3s. 6d. half-bound, with numerous illustrations.

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ECONOMICAL HOUSEKEEPER'S MANUAL.

BOOK I.—ON THE PRACTICE OF ECONOMY.

CHAP. I.—GENERAL REMARKS.

SECT. 1.—EXTRAVAGANCE CONTRASTED WITH ECONOMY.

1. THOSE who have seen much of the internal arrangements of our English households in the present century, will bear me out in the assertion, that the economy for which our ancestors were so remarkable, has too often been succeeded by a reckless extravagance of expenditure in every department. Formerly, very few heads of families were ever known to exceed their incomes; and it was only among the young and thoughtless that such a glaring act of indiscretion was ever practised. On the other hand, how few of us could avoid pointing out, within our own spheres of observation, however limited, numerous examples of large families who are being reared in the enjoyment of numberless luxuries to which they are not entitled, and which are certain to cease either at the death of the father, or often at a much earlier period. Nothing is more melancholy than the sight of a woman, accustomed all her life to a lady's-maid with all the concomitants, left with only sufficient to find her in the necessaries of life; yet the sum which to her is a paltry pittance would to many be the harbinger of comfort, the difference between the two simply consisting in the power which is possessed by the one, and denied to the other, of making the most of every thing, and of helping herself. It is truly astonishing how much a woman will contrive to spend upon herself when she is encouraged in extravagance; and, on the other hand, we must all admire the spectacle of the good manager, who contrives to maintain a respectable appearance and a comfortable fireside, and also often to

bestow a considerable amount of benefits upon her poorer neighbours In the one case, there is a constant desire for excitement, which alternates with *ennui* and depression; whilst in the other, all is peace and serenity: and the possessor of these valuable qualities is a pleasure to herself and all around her. It cannot for a moment be maintained, that extravagance is confined to the female sex; for too often it is shared with the husband, and in many cases the worst half is the ringleader in the scramble for display. Nevertheless, I think it may be maintained, that female extravagance is now more common than of yore, as compared with the similar quality in the male sex. This is more especially the case in the large provincial towns, where dinner-parties, evening-parties, carriages and horses, expensive clothes, and all the various items which help to swell the Christmas bills, are indulged in to an extent which must almost make our ancestors leap from their graves. Social intercourse is no doubt a debt which all incur, and should pay to the extent of their several means; but society can never demand that the sum which ought to be put by for old age, or as a provision for the family, should be spent in providing French and German wines, where port and sherry were formerly thought sufficient, or in paying for all the demands of a French cook, instead of being satisfied with a wholesome and plain dinner. French cookery and French and German wines are no doubt very palatable, and, when they can be afforded, there can be no possible objection to them. But the misfortune is, that they cost ten times the amount of plain English viands; and, when only occasionally indulged in, they not only please the palate at the time, but they disgust it with plainer fare. The same remark will apply to all the subdivisions of household expenditure, from the number of servants kept to the amount expended in "finishing schools" for the young ladies, and including the important items of "the stable and coach-house." In many families of moderate income, a close carriage is now considered absolutely essential; and yet their fathers and mothers were only able to lay by enough to provide them with the means of living, by confining themselves to a humble pony-carriage, or even perhaps dispensed with one altogether.

Sect. 2.—Cause of the Neglect of Economy.

2. This very general prevalence of extravagance at the present time is caused by a peculiar feature in the Anglo-Saxon race, which, when kept within due bounds, has led to its present high position in the scale of nations—I allude to the desire to excel, which is so remarkable in

this race, and which shows itself in a still higher state of development on the other side of the Atlantic. This has led to the happiest results in our arts and manufactures, especially when united with the perseverance which is also a national feature. But, in domestic life, it has led to a constant degree of emulation between neighbours and acquaintances throughout the length and breadth of the land, which is the cause of numberless heart-burnings and domestic quarrels, as well as of still greater pecuniary misfortunes. Because Mrs. A. has given a large and tastefully-arranged dinner-party, Mrs. B. must outdo her if possible; or perhaps Mrs. C. has set her heart upon a pair of grey ponies, because her bosom-friend, Mrs. D., has just started a pair of bays. Or, again, the following curtain-lecture awaits some unhappy father, already taxed beyond his powers of finding funds:—"My dear, do you know that Mrs. —— has just sent both her daughters to Madame —— for a year?"—"No, my love, I was not aware of it."—"Well, George, don't you think that Emily and Laura ought to have the same advantages, or they will appear awkward when they come out, which you know will be about the same time?"—"But, my dear Eliza, what an enormous bill I shall have to pay!"—"Oh, George! how can you consider such a trifle, when your daughters' welfare and future station are at stake? Besides, it is only for a year." And so the poor father is led on to enter upon an annual expenditure of some hundreds; for the mother has entirely omitted to state that she intends them to remain two years instead of one, and then to be succeeded by the next batch of girls. It is the vice of the present day, in all but the highest classes, for each to try to tread upon the heels of the class above it. Every one wishes to be thought a step above his or her real position; and thus the maid dresses to imitate her mistress, and the latter appears in the streets in a costume fitted only for the carriage. No one will contend that we are better or happier for this excess of emulation; whilst, on the other hand, it leads to envyings, jealousy, hatred, backbitings, slanders, and a host of smaller defects. Not the least of these is a want of mutual co-operation and confidence between husband and wife, by which a separate kind of interest is held by each, and a constant state of war is maintained, either of offence or defence. Instead of that community of goods and of interest which are so essential to happiness in marriage, there is a constant suspicion, on the one side, of being "robbed;" and, on the other, there is a perpetual feeling that she is not furnished with as many luxuries as her neighbours, Mrs. A., Mrs. B., and Mrs. C.

Sect. 3.—Necessity for an Early Practice of Economy.

3. Economy is not only necessary to the wellbeing and comfort of every family as a whole, but it is also desirable by way of example to its individual members, who can never acquire its habits so well as in early life. Why is it that large families do better in life than small ones? Simply, because they have been obliged to practise self-denial and economy from their earliest years, and are able to carry out in after life, without trouble, the precepts which have been always instilled into them. The Irishman raised upon potatoes and buttermilk, and the Scotchman upon oatmeal-porridge, will always thrive upon and enjoy these articles of diet, which, to an English stomach, are somewhat of the coarsest. And so it is with other, though less striking, examples. Many children are brought up without the power of refusing them any thing which tickles their fancies; and the consequence is, that, when providing for their own tables, they must have peas at ten shillings a quart, and peaches at five shillings a-piece. Now, it is just this craving after delicacies that makes the great difference, *on the male side*, between a large and a small outlay; and, when it is present to any extent, no mistress, let her be ever so good a manager, can gratify it day after day, without an enormous increase in the weekly bills. It is true, that she will be able to do much towards indulging her husband's wishes at a trifling increase of cost; but, if he is very *exigeant*, she *must* make great inroads on his purse. But, in addition, if she is a bad manager, and has not learnt her part early in life, she will, at all events, have hard work to make up, by dearly-bought experience, for her mother's neglect, and frequently will give up in despair, even if she has the will to learn, which is too often absent. No more valuable lesson can be instilled into the young by their parents, than this economy of money or of money's worth, requiring as it does, at that age, chiefly a control over the strongest appetite yet developed, but which is active enough to tax the powers of the child as greatly as more important temptations in after life. If to these lessons in both sexes are added practical examples of the use and abuse of money, and of its power of promoting our happiness in this world, or of causing endless misery, there will seldom be any occasion for that domestic discord which is now so often seen.

Sect. 4.—Co-operation of Master and Mistress Required.

4. In order to practise domestic economy with effect, several things

are essentially necessary. In the first place, a settled outlay should be fixed upon as the outside sum to be expended during the next year. Secondly, this sum should be paid over to the managing party in weekly or monthly instalments *punctually*. Thirdly, regular accounts should be kept, and an exact estimate should be made, of every item of expenditure for the current year. Fourthly, each partner should be made acquainted with the necessary outlay required in those branches undertaken by the other. Thus, suppose the husband manages the rent and taxes, the cellar, the stable, the coal department, and the garden, whilst the wife takes the remaining items; then let each explain to the other what will be the proposed outlay, and let them both endeavour to keep within their estimates. And this should be done, not with a view of saving for other little extravagances, but for the sake of the principle involved, and in order to please one another. It is not by the mere saving that a home is made comfortable, but by making the most of every thing, and keeping as good a table as the outlay is capable of affording. Between the two extremes of pinching economy and extravagance, there is a difference of 75 per cent. in money, though perhaps not much in comfort and happiness, the one being almost as miserable as the other. A well-ordered English household affords just the happy medium between the two. In it every real want is quietly and regularly supplied at the cheapest possible rate consistent with good quality; whilst the confidence of every member is given to all the others, because each is convinced that it will not be abused. Without a knowledge of the power of money when economically expended, this confidence is never felt; and therefore it behoves every one who is dependent upon other members of a household, to arrive at a certain theoretical amount of it, though he may not require actually to put it in practice. Ignorance is a constant source of suspicion, and this we know to be the bane of domestic peace. Within my own sphere of observation, I have known numberless instances in which young married couples have either been deceived, or fancied that they were so, by their second selves, solely because they had no reliable means of information upon the necessary worth of articles which were certainly wanted in some shape. Thus a young man with a small income, six months after marriage, is asked for some article of dress, of which he knows nothing as to price, and either he indulges his wife when he ought not, or else denies her when he ought to give her what she requires. The same remark applies to articles of domestic use, in which very often there is a material difference in the

cost, and a discussion upon which leads to bickerings and differences, depending solely upon the ignorance of one party or both. My object, therefore, in the following pages, is to afford such information to those who are desirous of it, as shall enable them either practically to carry out the various items of household expenditure, or theoretically to enter upon a discussion of their respective merits and demerits, their cost, and their application to the various wants of the family.

Sect. 5.—Explanation of the Plan Adopted.

5. In the plan of domestic economy here laid down, it is assumed that a fixed sum, varying from £100 to £1000 a-year, is to be laid out in certain items of expenditure, one of which is included under the head of "The Economical Supply of the Larder, Store-room, Cellar, &c." This sum is irrespective of all laying by, and of the items merely for education. It is usual among prudent men to set aside one-third of their incomes for this purpose, which is either invested in life assurance, or in other modes which may seem more advantageous. In some cases it is not possible to do this, but these are the exceptions; and, as a rule, it may be assumed that one-third is set apart for these purposes. No question, therefore, connected with the education of children beyond the nursery, or with the investment of money, will be here considered; these being found to embrace such wide fields of investigation as to exclude them from the limits of the following pages. With regard to the range of expenditure from £100 to £1000, there is obviously a wide difference in the establishments required; but still the same principles which are applicable to the one extreme are useful in the other; and, though the highest sum affords numerous luxuries which are denied to the other, still the lowest will enable its possessor to afford himself the actual necessaries of life, with a moderate share of comfort, if it is managed by a good housekeeper, to whom it is also punctually paid. It is obviously impossible to allude to all the various incomes between these two points; and it will be necessary to confine all remarks to the four sums of £100, £250, £500, and £1000. It should always be remembered, that a family accustomed to good management will do better upon £200 a-year than another, differently brought up, will upon £1000. I do not mean to say that they will make the same display, or command the same luxuries; but they will be free from debt, and happy among themselves. The great secret in all cases is to avoid buying what is not wanted, and also to steer clear of all fancies for those things which are difficult to obtain, when the

fancy is founded upon the difficulty alone. It often is the case, that dear things are the cheapest in the end, and such ought to be selected; but, at the same time, cheap ones should not be rejected simply because they are cheap. The really good manager counts the cost of every thing, and is able to weigh the value of each, as compared with its price. Absurd prejudices and fondness for novelty are alike to be deprecated; whilst the happy medium between the two affords the position which enables the possessor to arrive at all that economy is capable of achieving.

BOOK II.—PURCHASED GOODS.

CHAPTER I.—GENERAL REMARKS ON MARKETING AND SHOPPING.

6. The Act of Supplying the House with food for its inmates, and with fuel for its fires and lights (both being equally necessary to health and comfort), is called marketing, when it is effected by purchase either in shops or in open market. This method is usually adopted in cities and towns, and sometimes in large villages; but in isolated situations it is often more convenient and generally more economical to produce what is wanted, or certain portions only, by carrying on the several processes at home. In the former method, a certain number of individuals are employed, so that by a division of labour an economy of time and *space* may be effected. But, in order that marketing may be advantageously carried on, there must be a sufficient population to support special dealers in each article of consumption, or otherwise the charge or price must be so increased as to raise the cost very much above that at which it may be produced at home; for, as each seller must support himself out of the profits of his business, it follows that only when the returns are large can he afford to sell at a small profit upon each article, while in those cases where they are limited in amount, he must lay a heavy charge for profit upon every article that he sells. It is in this way that large dealers in markets can sell their meat and other goods at a lower rate than can be afforded by a small tradesman, who probably does not dispose of a hundredth part of their daily sales; and who very often is obliged to buy his goods of a wholesale dealer at a price very little below what the retail customer can obtain them at in the same market. To some people time is of the greatest importance, and half an hour spent in reaching a distant market would be poorly paid for by a saving of a penny a pound in the meat, poultry, or fish required by the house. In other instances, the gentleman of the house is positively prevented by business from undertaking this office, and the lady is too young or too timid to trust herself in the busy, and often not very odoriferous, thoroughfares where the butcher and the fishmonger expose their goods. In such cases either a servant must be intrusted with the task, or a neighbouring tradesman must be dealt with; and it is to

supply the wants of people so situated, that so many small shops are established for the sale of all the requirements of the housekeeper at a minute's notice. But for the above reasons it cannot be expected that they should sell at the same low rate as the large market salesman; and therefore they should either be taken as a convenience, and their goods paid for as such without comparing them with their wholesale competitors, or else they should be avoided altogether. It is very common for people to allege that certain shops are very dear; but let them ask themselves whether they, or their neighbours, lay out enough there to make a low price possible, if a living is to be made. If this question is answered in the negative, it ought not to occasion surprise that a high price is charged for the convenience which is always offered to them, and which they only accept when they cannot afford time to better themselves by searching further a-field. There is never any objection to a careful and economical housekeeper buying in the cheapest market; but there is not the slightest cause for her abusing those who merely offer her goods at the price which they think will remunerate them, without forcing her to accept the offer. The remedy is easy enough: all may choose for themselves, and may buy where and how they can best suit themselves—remembering always that an article apparently cheap, often becomes dear by the time that it reaches its destination. Thus, supposing a person to live at some distance from a market, she may be able to go there and purchase all that she wants at a lower rate than she can at home; but unless she can save more than the value of her lost time, and the cost of sending her marketing home, she will effect nothing towards reducing her expenditure. In general the time is not valued at all, and very often the sending home is not very costly; but I have known gentlemen, as well as ladies, save one shilling only in price, and spend two shillings in cab-hire to take the marketings home. Such an event is, however, an extreme instance of mismanagement; and there can be no doubt *that, in general,* a person of ordinary quickness and judgment will be able to save one-fifth or one-sixth of the gross expenditure in the daily supplies of food by searching the markets within her reach.

Plan of Marketing.

7. The methods by which marketing is satisfactorily conducted vary a good deal according to the articles to be bought, and also in accordance with the nature of the market. In London the best markets for each kind of food are very widely separated, and the person who

would try to visit them all, would find that she would lose more time and money than she could hope to regain by her clever bargains; and not only are the localities wide apart, but the hours for holding the markets are also different, so that it would be scarcely possible to transact business in each department without bestowing a considerable portion of the day upon it. Some markets, also, are so crowded, and so full of dirty and greasy dealers at the most busy times, that no lady could hope to escape annoyance, and therefore she is better away. It should be remembered that, for the practice of economy, two separate calculations are required: the first being the best method of *obtaining* the articles necessary for consumption; and the second, that by which those same articles shall be most advantageously *employed*. It is with the former of these, therefore, that we have now to occupy ourselves, considering in this Manual how best the careful housewife shall obtain her supplies, and in this particular Book how she shall best *go to market*, either in the open market or in the several shops devoted to each kind of article.

CHAPTER II.

Sect. 1—General Remarks on Butcher's Meat.

8. This article of consumption is to be bought in all large towns, either in butchers' shops where it is daily exposed for sale, or in markets where the sale is on stated days, or in some cases, as in the chief London meat-market, every day. In many small towns, and in most villages, meat is only to be bought on a single day in the week; and during the summer season, when it will scarcely keep from day to day, great inconvenience is there experienced. Wherever there is sufficient accommodation for keeping meat, it is better to buy it as soon after it is killed as possible, or at least after it is exposed for sale; for until it is set and cold it is not fit to be moved, nor will the butchers, for their own credit, allow it to be seen or bought.

Quality of Meat.

9.—There is a great variation in the quality of meat brought to market, and consequently in its price, so that the young housekeeper must not fancy that she is always right in purchasing cheap meat, because it is to be had at a penny a pound lower than the price paid by her neighbour. By the returns of all markets there is a difference

of about one-fifth, or even a quarter, between the highest and lowest wholesale prices paid, as is evident from the annexed Smithfield and Metropolitan returns, taken at random from the *Times* of this day, June 10th, 1856:—

COMPARATIVE PRICE OF CATTLE IN 1854, 1855, AND 1856.

MONDAY, JUNE 9, 1856.

	s. d.		s. d.
Beef	4 2	to	5 2
Mutton	4 4	„	5 0
Lamb	5 0	„	6 0
Veal	4 4	„	5 4
Pork	4 2	„	5 2

MONDAY, JUNE 11, 1855.

	s. d.		s. d.
Beef	4 0	to	4 8
Mutton	4 4	„	5 0
Lamb	5 4	„	6 8
Veal	4 0	„	5 0
Pork	3 10	„	4 10

MONDAY, JUNE 17, 1854.

	s. d.		s. d.
Beef	4 0	to	4 10
Mutton	4 0	„	5 0
Lamb	5 0	„	6 0
Veal	4 2	„	5 2
Pork	3 10	„	4 6

From this table it is clear that the inferior butcher is enabled to sell to his customers meat one-fifth, on the average, cheaper than the man who deals only in the higher qualities of meat, and hence it is that the markets vary so much. But further than this, a great deal of the difference of price depends upon the demand in any given locality for particular parts. Thus, in the markets and shops frequented by the upper und middling classes only, the best joints are in demand, and the inferior ones meet a comparatively slow sale, the consequence of which is, that the butcher is compelled to raise the price of his sirloins of beef and legs of mutton and veal, and to lower those of his necks of beef and mutton, and shoulders of veal. Hence, it will always be found that in poor neighbourhoods, or in markets frequented by the poor, there is less variation in the price of joints than in those shops where the higher classes chiefly deal: and this is necessary for the butcher to make a living, because he is obliged to force a sale of the inferior parts, as well as the highly-prized joints, by averaging the price to suit the wishes of his customers. A small tradesman, or a mechanic with

good wages, will not be tempted to choose an inferior joint of meat, unless he can get it at a reduction of three-halfpence or twopence a pound; while the poorer labourer will be only too well pleased if he can muster money sufficient to pay for a joint of meat of any kind, and will consider a penny a pound saved quite sufficient to make him select the one in preference to the other, especially as he is often guided by absolute necessity in his choice. With regard to the quality of the meat in point of economy, I believe that it is of more consequence than is generally supposed; and nowhere is this theory more fully carried out than in the cook-shops of London. Here dressed meat is sold at low prices, yet it is almost always of good quality, not only because it is better relished by the customers, but because *good meat turns out a greater bulk and weight when dressed* than inferior descriptions of the same article. Proprietors of these shops go to great trouble in frequenting the markets, where the dealers say they are very hard to deal with; but they rarely buy foreign, or inferior English, meat: and, though they equally avoid the fancy kinds, yet they always take care to select that which is *well-bred*, and consequently containing a small proportion of bone, and *well-fed*, and therefore not given to melt away before the fire or in the pot. Meat with good solid fat, not watery blubber, and with lean containing plenty of fibrine, is what they require, and what the small housekeeper also should look out for if she can get it. Experience teaches them to make their selection, and such must always be the best guide, but, failing that, the accompanying remarks will, perhaps, be of service:—

The Quantity of Bone.

10.—The quantity of bone in a given joint also regulates the price, and very properly so, since this material, though not absolutely worthless, is nearly so as compared with "fat and lean." In buying veal, for instance, the whole leg may always be procured at a penny or three-halfpence a pound less than the fillet, because the latter has no bone at all if sold as a "fillet," in which case the bone is removed by the butcher; whilst the leg contains not only the bone (taken out from part of it to constitute "the fillet"), but it is made up besides of the part called the "knuckle," in which there is a still greater proportion of bone. In a moderate-sized leg of veal, of 20 lbs. weight, the bone altogether weighs about 3½ lbs., which must be deducted from the gross weight before the value of the meat can be arrived at—leaving 16½ lbs. If, therefore, the fillet can be bought for 7d. per lb., the whole leg,

which at the same rate is worth 9s. 7½d., calculating only the meat upon it, ought to be bought for 5¾d. per lb., or at a difference of 1¼d.; so that the taking off a penny only is not enough to counterbalance the loss upon the bone, unless its value for making soup is taken into the account, and that will probably bring it to what the butchers generally charge, namely, one penny to three-halfpence per pound more for fillets than whole legs. The same remark applies to necks of mutton, especially if they are bought with all their fat on. In this joint the bones weigh about one sixth of the whole, varying, however, greatly according to the degree of fatness; and on an average the bones and the fat together will comprise two-thirds, or from that to one-half, of the gross weight. Now, in general, the melted fat, in the shape of dripping, if taken care of, may be considered to be worth as much as the meat, especially in large families, where it is used for making various articles for the table, or where it is sold to the dealers in this article, who give quite as much for it as the current price of the best joints of meat; but in small families, or in those where the dripping is not used, and is made a cook's perquisite, the fat as well as the bone is a dead loss. Consequently every neck of mutton is worth only half the value of a joint composed of meat entirely, or nearly half the value of a leg of mutton, of which a very large proportion is solid meat. Sirloins and ribs of beef are equally extravagant, and will go very little more than half as far as the roasting side of the round of beef, or any other solid part, which, though commonly considered coarse, is yet juicy and nutritious, and quite fit for the stomachs of children or for servants' tables—in fact, for any one but the *gourmand*. The table in the next page exhibits the proportion of meat to bone in the most ordinary joints of meat; the joint, when raw, being first weighed, and afterwards the bone, when dressed, and its meat removed by the knife. The exact relative proportion of bone to meat is therefore here considerably understated, as, to insure perfect accuracy, the bone ought to be weighed in a raw state; but this is sufficient for all practical purposes, especially as the object is to compare one joint with another in its proportion of bone. The table also gives the present average prices of each joint in the London *markets*, not in the retail butchers' shops.

The Price of Meat.

11.—The price of meat may therefore be said to depend upon the following circumstances:—1st, upon the *quality* of the animal producing it; 2nd, upon the *neighbourhood* where it is sold; 3rd, upon the

joint, as valued by the quality of the meat upon it; and 4th, upon the *joint, as valued by the absence of bone.*

PROPORTION OF BONE TO MEAT, AND PRICE.

	Gross weight.	Weight of bone.	Price per lb.	Ordinary Method of Dressing.
BEEF.				
	lb. oz.	lb. oz.	s. d.	
Sirloin	13 6	1 9	0 8	Roasted.
Rump	18 7	4 0	0 8	Roasted, or for steaks, or stews.
ft-bone	10 6	1 6	0 5½	Salted and boiled.
Round	18 4	1 12	0 6	Boiled, if entire — or silver-side boiled; the other roasted, or for beef-steaks.
Mouse buttock	3 0½	...	0 5	For stewing, or beef alamode.
Veiny-piece	7 0½	...	0 5	Salted and boiled.
Thick flank	11 4	1 7	0 5	Ditto ditto.
Thin flank	8 12	...	0 5½	Ditto ditto.
Leg	12 6	3 5	0 3	For soup, or stewing.
Ribs (best end)	14 8	1 15	0 8	Roasted.
Ribs (middle)	12 2	2 3	0 7½	Ditto.
Ribs (chuck)	8 6	1 12	0 6	Ditto, or for gravy.
Shoulder	10 6	2 0	0 5	Steaks, or soup, or inferior roasting piece.
Sticking-piece	8 4	0 11	0 3	For sausages, or gravy.
Shin	9 6	2 6	0 3	For soup, or stewing.
MUTTON.				
	lb. oz.	lb. oz.	s. d.	
Leg	8 6	0 14	0 7	Roasted or boiled.
Loin, best end	5 7	0 9	0 7	Roasted or chops.
Ditto, chump end	4 3	0 7½	0 7	Ditto ditto.
Neck, best end	6 0	0 8	0 6	Roasted, boiled, stewed, or for chops
Ditto, scrag end	4 6	0 7	0 5	For broth or stewed.
Shoulder	7 4	1 0	0 6	Roasted.
Breast	5 3	0 12	0 4½	Roasted or grilled.
VEAL.				
	lb. oz.	lb. oz.	s. d.	
Leg	19 4	3 0½	0 6	Roasted, boiled, or cutlets.
Fillet	11 0	—	0 7½	Roasted.
Neck, best end	9 0	1 0	0 7	Ditto.
Ditto, scrag end	5 4	0 10½	0 4½	Stewed.
Loin, best end	5 6	0 13	0 7½	Roasted.
Ditto, chump	4 12	1 4	0 7	Ditto.
Shoulder	11 4	1 11	0 5	Ditto.

QUANTITY NECESSARY FOR HEALTH.

12.—The Quantity of Meat necessary to keep in health each individual of an establishment, will be an essential part of the knowledge required by every caterer for them. Meat is a perishable commodity, and it is also one which is capable of being husbanded or wasted to a great extent, as well as being dishonestly sold or given away by servants, who must be intrusted with it. About three-quarters of a pound of meat, as sold by the butcher, will be found to be the average consumption per head per day in the families of the middling classes.

This is independent of bacon, ham, poultry, and fish; and it is not a little remarkable, that the consumption of these four articles does not seem to affect to a sufficient extent the quantity of butcher's meat required. If, however, these items are indulged in to an unusual amount, there will be of course some considerable difference, but not if introduced only as occasional variations from a diet of meat. When there is a family of small children, and the elder branches and servants are small meat-eaters, half a pound a day will often suffice; and again, in other families, composed chiefly of young men, a pound per day must be calculated on as the probable and proper allowance for them. Taking the average consumption of all classes of the people of England, the supply of butcher's meat is probably little more than a quarter of a pound per head per day; but then it must be remembered that a very numerous class, including the agricultural labourers and the poorest class of mechanics, rarely, or only occasionally, taste any thing in the shape of fresh butcher's meat.

Slaughtering.

13. The Slaughtering of all kinds of butcher's meat is conducted in such a way as to remove a large portion of the blood of the animals, and in calves to an unusual extent. These animals are bled once or twice before they are killed—that is, on the day previous, and often on the day before that, and they are finally bled to death. Sheep and lambs, as well as pigs, are also bled to death, by having their throats cut, whilst oxen have their sensibility destroyed by a blow on the head, after which their throats are cut to remove as much blood as possible. All are also starved for twenty-four hours, during which they are only allowed access to water; but though this deprivation of food is said to be adopted in order to improve the quality of the meat, and make it keep, I question its necessity. There is no doubt that the fodder necessary to make up a day's food is thereby saved, but beyond this I do not believe that any advantage is gained; and the cruelty is often very considerable, as we all know what pain a day's starvation causes to ourselves, especially when accompanied by excitement or fear. I am quite sure that a pheasant, or a hare, or even a fine buck, is none the worse for a recent full feed; and I much doubt whether they would be benefited by a large bleeding on the previous day. It is true that the red deer has his throat cut as soon as possible after his death, but his haunch is not rejected as food, if the deer-stalker does not reach him in time to allow of his parting

with any quantity of that fluid. If the throat is not cut within a very short time after the heart has ceased to beat, little blood will follow the knife, and the body generally will not be affected by it, however the large vessels may be emptied. Nevertheless, the custom exists universally in this country, and there is no doubt that the presence of blood in the vessels leaves a disagreeable impression upon the person who examines meat with a view to eat it himself; and yet the same person will not hesitate to partake of black-puddings, which contain a large proportion of the blood of the pig. The animals required for the supply of large cities are partly killed within them, and partly sent by railway in a dead condition, commonly called *country-killed* meat. In the first method, the cattle and sheep are driven or carried to market alive, and are then, after being sold, driven to the butcher's, where they are killed; and afterwards, in the case of the wholesale carcass-butcher, resold to the retailer, still called a butcher, and frequently dealing in both kinds of meat. In London there is only one live cattle market, the *Metropolitan*, which was removed from its old locality, Smithfield, chiefly because of the danger to the inhabitants from driving oxen through the streets. This nuisance, however, is very little abated by the new market, since the whole of the cattle required by the southern districts must pass and repass through the heart of London. Blackfriars bridge on Monday afternoons is perfectly thronged with cattle and sheep, and is quite as dangerous a thoroughfare as was ever presented by the streets in the vicinity of old Smithfield. There should, without doubt, be a new market on the south side of London; and the cattle and sheep should in each case be slaughtered in an *abattoir* near the place of sale. There is no possibility of getting over the necessity for driving the animals to the market, and, as it principally takes place early in the morning, it is of less consequence to the public; but there is no excuse for driving them in mid-day back again, when an arrangement may be so easily made for every purchaser to kill and dress his own animals at his own convenience, provided he does not take them away from the vicinity of the market. Meat carried far by railway is certainly not improved in delicacy of appearance, though I cannot believe that it is *really* injured by it; but the conveyance of it for two or three miles in a spring-cart will not detract one jot from its freshness or bloom, and even if these are affected, still, provided there is no injury done to its intrinsic good qualities, it can be of no real consequence, especially if the arrangement is compulsory upon all.

Sect. 2.—Beef.

14. The Varieties of Cattle which come to the London market are very considerable, the greater part being British, but a very considerable proportion being now imported from Spain and Denmark. The interior of England is not much affected by these foreigners, except through the London market, which, to a certain extent, re-acts upon those held in the provinces. Before the days of railroads there was a difference of nearly twopence a pound in the wholesale prices of meat in London and the country more than one hundred miles from it; but now they assimilate very closely, and, sometimes from the great influx of foreign cattle, the metropolis is even lower in price than its surrounding sources of supply. The best British breeds always command a higher price than any others, because the quality of the meat is very superior, and it is consequently eagerly sought after by all those who can afford it, and by many who cannot, as well. Oxen are generally considered to make better beef than cows, or even heifers, especially by the Londoners, who look upon *cow*-beef as the refuse of that commodity. In some counties, however, ox beef is not valued, and the three-year-old heifer is considered to be the primest article. Much depends upon the breed, the ox in some cases being more hard and tough than in others; much also depends upon the use to which the animal is generally put. Thus, in the dairy districts, cow-beef is only killed when no longer of an age to be serviceable in the dairy, and, as a consequence of her age, is tough, stringy, and generally devoid of fat. On the other hand, the Hereford cow is often killed because she feeds so fast as to be a bad milker, and this fault is generally detected with her first calf; so that she is doomed to the knife in her fourth year, an age when she is in her prime, and consequently when she would be selected by a good judge, irrespective of her failure as a milker. The same remarks apply to bull-beef, which is extraordinarily good and tender when not more than two years' old, at which age the bull is often killed in some districts; but, if a five or six year old bull is slaughtered, he is only fit for soup; and, if his meat is dressed in the usual way, the consequence will probably be that those who partake of it will condemn bull-beef as unfit for human food. Small Scotch cattle rank the highest in the London market, especially when fattened in the rich meadows of England, where they rapidly become ripe for the knife. Most of these are oxen, though there is a small sprinkling

of heifers and cows. The Hereford and Durham oxen are also prized; but their beef is large, and not so well suited for small families as the above. The Spanish oxen are also large; but the meat is not nearly of such a good quality, and the sea-voyage does not improve them for the table, nor do they generally recover their condition if left to graze in this country. Most of the foreign meat is entirely without any of that mottled fat intermixed with the lean which is so much prized in the "roast beef of old England;" and there is a peculiar flavour about it, which differs considerably from that of our breeds, besides which, it wastes much more in dressing than English or Scotch beef. Foreign bullocks are also larger in the bone, which increases the relative proportion of that commodity to the meat. But far more depends upon the feeding than the breeding, and a well-fed ox of an inferior breed will always eat better than a badly fed one descended from the highest and purest parentage. There are some pastures which will turn out nothing but good beef, whatever cattle may be placed in them; whilst other districts are so unfit for the purpose, that they would not even *keep* a fat bullock fit for the butcher more than a week or two, and would never *make* one fit as long as he was supplied with no other food. The more of the rich grass that an ox has, the better will he turn out; and in proportion to the necessity for artificial food will be the deterioration of the beef, though it is not to be doubted that oil-cake, with hay and turnips, will produce better meat than a bad pasture. A preponderance of oil-cake causes the fat to be of a deep yellow, and the lean to taste oily and rich; this is especially the case with those breeds which are much inclined to lay on fat, as the Herefordshire, for instance.

15. In Choosing Beef, the hand and the eye are both called into play; for not only must the colour and general appearance be in conformity with established rules, but it must feel tender to the touch. Old and hard beef feels elastic when pressed by the finger, while young and tender meat gives way, and *retains the impression of the finger* after it is removed. Beef, when first cut through, ought to present a bluish-red colour, which should rapidly become almost a crimson red on exposure to the air. The grain should be smooth, fine, and transparent-looking, with an intermixture of fat in the rump, sirloin, and ribs. The fat should be firm and white; the deeper the yellow the more oil-cake has been employed in producing the fat, and the worse will the flavour be. Cow-beef is closer in the grain than that of the ox, and the fat generally more white; in the cow there will always be the

udder to mark the sex, or at all events the fat is arranged differently in that region, being more broken up into nodules than in the ox, which presents a large *roll* of fat on each side. Bull-beef is usually more dark and blue than either that of the ox or cow; it is also, when of more than two years of age, hard and tough, and unfit for ordinary kitchen use. The age of the animal may always be known if the head is visible, by counting the rings upon the horns, one of which is added for each year of its life.

16. The Ox, or Cow, is cut up very differently in England and Scotland; and even between London and the provinces, as well as in the several counties themselves, there are many trifling alterations in the cut. In every part, however, there are the same prime cuts, consisting of the hind-quarter and the ribs; whilst the remainder of the fore-quarter and the neck are considered coarse and of inferior worth. In every case the carcass is divided into four quarters by the line (*fig.* 75 76, A B), and by a longitudinal section down the backbone and belly. In the London mode (*fig.* 76), the hind-quarter is divided again into the leg (1), a soup-making part; the round (2), which is also subdivided at the dotted line into the silver-side, for boiling, and the roasting side, while the upper section forms the mouse buttock; (3) is the H-bone, a well-flavoured but bony piece; (4) the rump, properly so-called; (5) the sirloin, which is usually cut into two or three portions to suit small families, the lowest end having the least bone, and also the largest proportion of the meat called "the under-side," and therefore the most prized; (6, 7, and 8) are the three joints called "the ribs," the middle being the most liked, and all being very extravagant; (9) the clod or sticking-piece is a portion of coarse meat, only fit for gravy-beef or for family pies; (10) the shoulder is a joint sometimes roasted, but it is coarse and unfit for any thing except stewing or pies, for the former of which purposes it is very commonly selected; (11) is the brisket, a very nice part of the beast when salted and rolled —the thick part is well adapted for stewing, and the thin for salting; (12 and 13) the thick and thin flank are composed of layers of fat and lean, which eat tolerably well when salted, but are not much prized by any but the labouring classes, for whom they answer very well when mixed with vegetables and boiled or fried; (14) the veiny-piece is a very indifferent bit of meat, and only suited to making gravy or soup; as also is the shin (15); the cow-heel (16) is boiled down for its oil, and then it makes a very nutritious article of diet; the tongue (17) is salted to form the delicious dish so well known; and the cheek

(18) makes an admirable soup; lastly, the tail (19) is cut out with a deep root, and is sold to make a very good kind of soup.

17. Another Mode, practised in the midland districts of England, is that shown in *fig.* 75, where the round is divided obliquely into two joints—the upper buttock (2) and the under (3). The rump, also, is a large joint, including within its compass the rump and H-bone of London (see 4). The sirloin (5) is cut larger, but it and the ribs (6, 7) are divided in a similar way, though sometimes the latter part is endowed with a different name, as "the chine." The shoulder, or, as it is called, the blade-bone, is cut larger, and more separated from the brisket lying under it. In other respects there is little difference from the London cuts.

18. The Most Highly-prized Joints for *flavour* are, for roasting, the sirloin and ribs, and by some people the rump; for boiling, the round (more especially its silver-side) and the H-bone are those most approved of, and by many people the middle part of the brisket. For steaks, the rump is superior to any other part; but, to have them in perfection, the whole rump ought to be hung as long as it will bear, according to the season of the year, and then the steaks cut off and dressed. Those cut off the upper or buttock side of the round are sold at a lower rate than rump steaks, but they are not nearly so tender, or so full of flavour and gravy, though equally nourishing perhaps to a sound and strong stomach. In point of *economy*, the sirloin and the ribs, as well as the H-bone and rump, are very disadvantageous, all being loaded with bone; while the round, the flank, the brisket, and the sticking-piece, as well as the shoulder, are made up of pretty nearly solid meat. The purchaser should therefore remember that he not only has to give a higher price per lb. for his sirloin or ribs, but he also has far less solid meat for his money; so that it will be found that 10s. laid out in the round, or any meaty joint, will go nearly twice as far as if spent in procuring any of the more "dainty dishes." The heart (20) is a solid lump of meat, and a very economical one in a large family. It is not generally valued as it deserves, partly from the dislike which many people have to the internal organs. The liver and kidney of the ox are not very well flavoured, being strong and rank, and they are only fit for the stomachs of the labouring classes, and even by them they are very often despised. The stomach is made into tripe, by cleaning and boiling, and is eaten as a delicacy by many people.

19. Beef is in Season all the year round.

Sect. 3.—Mutton.

20. Sheep, from which this section of the butcher's stock-in-trade is derived, are quite as various in their breeds as those animals from which beef is produced. As cows and oxen are valuable, the former for the milk they give, and the latter as beasts of draught, independently of their use when dead, so sheep besides this same purpose are reared to supply us with wool; and those which produce the most of this valuable commodity are very often the worst when in the shape of mutton. Hence, it becomes the object of the breeder to unite the two qualities as far as possible, and to add another, upon which depends in great measure the cost of the animal—namely, its faculty of arriving at maturity at an early age. The cost of a sheep when at the butcher's is measured by the amount of food which it has eaten (less its wool and the manure which it has made, and in the case of ewes the value of the lambs); but, as these deductions never equal the yearly expenditure for food, it is always important to diminish the number of years which must elapse before the sheep is at its prime. Some years ago mutton was not considered first-rate until four or five years old, but such a thing as a four-year-old *wether* is now rarely heard of; and, when it is met with, the mutton must be worth 1s. 6d. per lb., if valued by what it has cost. By breeding from young animals which have shown early symptoms of maturity, the sheep-farmer can now produce as good mutton at fourteen months as could formerly have been shown at double that age; and I have certainly eaten it with a high flavour, and rich brown gravy, when not more than the age above specified. Still, this is younger than the average at which mutton ought to be eaten, and will only suit flocks which are bred for that purpose almost exclusively. Nothing is better eating than the hind-quarter of a Welsh sheep, *if fat;* but this breed is so restless in its early years, that it refuses to lay up any store of that material, and it is very rare to meet with a prime haunch of *Welsh mutton* under two and a half or three years old. In the condition in which most of this mutton is brought to London it is far below the average, and indeed scarcely fit for food at all, being more like *bad* doe venison than healthy mutton. This sheep is a very wild and restless animal; and, even if it is enclosed within strong fences, it generally manages to escape and wander over the surrounding country, frequently doing itself more harm in its efforts to escape than if allowed its full liberty. But after the second year it

settles down into good habits, and will then often lay on fat, especially about the kidneys, to a considerable extent, in which state a haunch of it is superior to all other kinds of mutton, as far as my experience goes. Large flocks of these sheep are reared in Wales, and sheared there once, sometimes twice, after which they are driven into Herefordshire, Worcestershire, and Shropshire, where they are fattened upon the high pastures, which are quite sufficiently good to serve as a change for the better for the Welsh sheep. The fore-quarter is strong and ill-flavoured, but the haunch fully makes up for this deficiency. They usually weigh from nine to twelve pounds the quarter. *Southdown* mutton ranks next to Welsh, and by some people is considered quite equal or even superior to it. I have no doubt that the *average* of Southdown mutton is superior to the *average* of Welsh; but none that I ever ate could compare with a haunch of Welsh mutton, three years old, and fattened in the uplands of Worcestershire. Its fore-quarter, however, is vastly superior, and it is a much more profitable sheep in all ways. It may, therefore, be sold of first quality at a lower rate, though it requires at least two years, or a little more, to bring it to maturity. Next to them come the various crosses with the Southdown, some of which nearly equal it in point of flavour, though all are rather more coarse, and of a larger size. The *Leicesters* and *Cotswolds*, as well as the *Shropshire* sheep, produce good, large, useful family joints; but they are not nearly so fine-flavoured as those first described, and their legs alone weigh from 12 lbs. to 16 lbs. a-piece. They lay on fat readily; but, like all long-woolled sheep, their mutton has a tendency to taste of the wool, especially in the end of the year. Some foreign sheep are imported from Spain and Germany; but their numbers are not great, and the quality is very inferior to our natve breeds. With these objectionable qualities in some over others, it is no wonder that the price of mutton should vary so much as it does, there being frequently, as in beef, a difference of one-quarter the price between the worst and best kinds at market. The breed, the age, and the sex, all influence the price; wethers being considered much superior to ewes, three or four-year-olds better than two, and this than one-and-a-half, and the Southdown breed and its crosses being in general more highly valued than any others. Ewe mutton in the autumn, when not more than two years old, is often quite equal to the average, and superior, when of a good breed, to wether mutton of an inferior kind. The age may be guessed by the hardness and whiteness of the outer layer of the bone when cut across, and by the

teeth when the head is left attached. The sheep sheds its incisors or front teeth, and the central pair are changed at about the age of fifteen months, the permanent teeth growing up in their place by the end of three months from that time. These are soon followed by the other incisors at intervals, the first being about six and then nine months; so that the sheep which has just shed its *four* central teeth is one year and nine months old, and it is two years and a half when it has shed *six* teeth, the complete set being changed by the age of three years and a quarter, or a little more, varying with the tendency to early maturity or the reverse. By these signs the *gourmand* may, if he chooses to take the trouble, ascertain what is really the age of his mutton. *Fig.* 77 shows the jaw of the sheep at one year and three-quarters, which is on the average the earliest age at which it is fit for mutton, though, as I before remarked, in some flocks the maturity is so great as to allow of an earlier use of the knife. *Fig.* 78 is a view of the mouth at three years and a quarter, an age at which wethers are now seldom brought to market, and when ewes are no longer capable of producing first-class meat, but at which they are often made into mutton after having had two lambs. Beyond this age there is seldom any necessity for a guide; but the broken edges or entire loss of the teeth are a good test when necessary. *Ram-mutton* is coarse, woolly-flavoured, and tough, though often sold, at the lowest market price, to those who are ignorant of its bad qualities. It is of a deep bluish red, and the fat is more spongy than that of the ewe or wether. Ewe mutton is easily known by the udder left as a glandular-looking lump on the inside of the leg.

21. The Sheep is killed by first tying its four legs together, then placing it on a wooden frame, on its side, and thrusting a knife behind the jaw through the neck, so as to divide the large blood-vessels. It soon bleeds to death, and it is then rapidly skinned, opened, and cleared of its internal organs, the heart and liver only being eaten, and the intestines used for holding sausages; while the stomach, called the "paunch," is given to dogs, and the "lights" to the cat. The head, lights, heart, and liver, are usually sold together, and called "the pluck," the price being from 1s. 6d. to 2s. 6d.; the paunch fetches 1½d. to 3d.

22. The Sheep is Cut up nearly in the same manner all over England, there being, however, a slight variation in Scotland. As in the ox, the primary division is into four quarters, which are made nearly in the same manner. The whole hind-quarter is called the *haunch* (see 1. *fig.* 79); when this is divided it makes two joints, the *leg* (*a. fig.*

80), and the *loin* (*b*); the two loins are sometimes left together, constituting what is called the *saddle*, as in *fig.* 80. The fore-quarter, again, is divided into the shoulder, which is raised from the ribs under it (see 4, *fig.* 79), and afterwards the remainder is divided longitudinally into the neck (2), and the breast (3). The lower end of the neck is called the *scrag end*, and is that part uncovered by fat, lying under the shoulder.

23. The Value of these several joints varies considerably, the leg and loin being the dearest, and the neck, breast, and shoulder the cheapest, with a difference of a penny or three-halfpence a pound on the average. The leg is nearly all solid meat, and it is consequently a very economical joint. The haunch has a considerable quantity of bone in the loin, and also a piece of flank, which is comparatively worthless. In the shoulder there is a still larger amount of bone, and the lean is coarse, containing also a large quantity of fat. For chops the loin is generally most highly prized, but many people think the best end of the neck quite equal, if not superior to it. The fat ought to be taken off before dressing, and it is superior to suet for puddings.

24. Mutton is in season throughout the year; but in the autumn it is not so good as at the other seasons of the year, the meat being woolly flavoured.

25. The Best Test for Mutton is the flavour when it comes to the table, together with the quantity and depth of colour of the gravy. Young and ill-fed mutton gapes on cutting it, and is tasteless and spongy, and the gravy scanty, pale, and watery.

Sect. 4.—Lamb.

26. Lamb does not change its name when exposed in the shops of the butchers, being still lamb there as in its native fields. There is as great a difference here in the various breeds as in beef and mutton; but to most people lamb is lamb, let the quality be good, bad, or indifferent. The *Dorsetshire lambs* are the earliest, next to *house lamb*, which is capable of being produced at Christmas—the warmth of the kitchen enabling the rearer to shelter the lamb at any season. These early lambs are very delicate in flavour, and fetch high prices in London and elsewhere; and up to the time of Easter, whenever that may be, the fore-quarter generally fetches nearly double the price of beef or mutton. Grass lamb lasts from March till August.

27. Lamb is slaughtered like the sheep, and cut up also in the same

Fig. 77

Fig. 78

Figs. 77 & 78.—THE TEETH OF THE SHEEP.
,, 79 & 80.—JOINTS OF MUTTON.
,, 81.—JOINTS OF VEAL.

way, though it is never sold except in quarters until after Easter. The fore-quarter is most highly valued, and it is dressed whole.

28. The Freshness or Staleness of Lamb are the *chief* points to be attended to in purchasing it, though, as I before remarked, breed has something to do with the flavour in eating it. The Dorsetshire lambs only can be obtained early in the season, consequently there is then "Hobson's choice;" but afterwards the Southdown are the best, and they may be known by their black legs and faces, which are generally left on to mark their superiority. With regard to freshness, the vein of the fore-quarter is the best guide; it should be blue, without any tinge of green, the latter colour marking the commencement of putrescence. In the hind-quarter the kidney fat turns slightly green, and gives a faint smell, not exactly putrid, but approaching to it; the knuckle also ought not to be limp, but should preserve its stiffness. The eyes are the best guide of all, and as long as they are full and bright the buyer may rest assured that the lamb is only just killed.

Sect. 5.—Veal.

29. Calves produce veal in nearly, but not quite, as great variety as bullocks and sheep do beef and mutton; but, in respect to veal, the alteration is more in reference to the diet and management than to the breed. Nevertheless, this last influence is very great, and the difference between an Alderney calf and that of a Hereford is very considerable, though here also the milk of the former, being much richer and more plentiful, may in some measure account for the difference. Large quantities of veal are brought up to London by the railways, and some from Belgium by the steamers. The greater part of this is small and devoid of fat, but of good flavour nevertheless. The prime veal of the London market is supplied from the adjoining counties, where the fattening of them is carried on by men who buy up the calves from the dairy districts, and bring them up by cows which are able to suckle another in addition to their own. At the age of ten or eleven weeks these calves weigh nearly 20 stone, and are then worth £4 to £4 10s. a-piece, at the usual price of veal. In some counties the calves are not killed till they are still larger, while in Dorsetshire they are rarely suffered to live more than three weeks, the cow-calves being invariably saved there to be reared as milkers.

30. Calves, as already mentioned, are bled considerably before they are killed, which is managed differently from the killing of the lamb

or sheep. The calf is sometimes hung up by the hind legs before its throat is cut, but in all cases it is hung up the moment the veins are divided, so as to cause as much as possible of the blood to flow out, and thus leave the meat as white as it is capable of appearing, depending a good deal in this respect upon the feeding and the breed. As soon as the blood is all drained away, the butcher makes a small slit on the inside of each leg, fore and hind, and then drives his steel as far as it will go down between the skin and the flesh, making it spread the cellular membrane a little at the point, so as to form a small cavity. Into this passage he next introduces a pipe, which he uses to blow into and inflate the whole cellular membrane of each calf, driving in as much as he can by the power of his lungs, and then by the aid of the hand pushing and rolling it under the skin in all directions. The object of this is to make the veal look less thin and cadaverous-looking than it naturally does; but as it causes the meat to spoil much more rapidly than it otherwise would, it is not practised in the veal which travels any distance, and hence this kind looks worse than that of the home-killed calf.

31. The Calf is cut up somewhat differently to either beef or mutton, but it also is quartered in the first instance. The hind-quarter is cut up into the *leg*, which, again, is subdivided into the *knuckle* (*fig.* 81, 1), and the *fillet* (2); the *loin* (3) is often divided into the *best end*, lower in position, and containing the kidney and kidney-fat, and the *chump end* above, in which is a great deal of bone. In the fore-quarter, the *shoulder* (6) is removed in all cases, and sold by itself at a price lower than any other part, it being rather coarse in texture and devoid of fat. It is therefore often bought as an economical family joint. The *neck* (4) is considered by some people very good; but it is full of bone, and not very economical on that account. Its *best end*, which is uppermost, is far superior to the *scrag*, which lies under the shoulder. The *breast* (5) is likewise often divided into two portions, the upper being the *best end*, and the lower the *brisket*, in which lies the *sweetbread*, a great delicacy to some people. In the internal parts, the heart, liver, sweetbread, and kidney are all eaten, and are good of their kind. The sweetbread is, however, attached to the breast, and the kidney to the loin.

32. The Calves' Head (7) is used either as a dish by itself, boiled or hashed, or for the purpose of making mock-turtle soup. It is considered in any case a great delicacy, and is sold at prices varying from 3s. to 5s., according to locality and the presence or absence of its skin,

which, when scalded and deprived of its hair, becomes converted into a gelatinous layer by boiling.

33. In Point of Economy there is nothing like the leg; its meat is all solid, except the bone, which weighs considerably, it is true, but, nevertheless, it goes a great way in supplying the wants of a family. That part called the fillet has the bone taken out, but it is sold at a higher price in consequence. The shoulder is generally to be bought at a penny or three-halfpence a pound cheaper, and it may then be considered more economical, but it has a heavy *knuckle* also, and besides this a large blade-bone with a thick edge of gristle. There is no part but the leg which will serve for cutlets, the meat of the shoulder not being adapted for that purpose. The breast stews or boils well, and serves for several purposes in made dishes.

34. In Choosing Veal, select that of which the kidney is well covered with thick *solid* and white fat. The whitest meat is not always the best flavoured, being made so by bleeding and improper feeding, with that object in view. The cow-calf is preferred when it can be obtained; and it may be known by the udder on the fillet. The bull-calf makes darker and harder veal. Veal, like lamb, requires to be quite fresh, which is shown by the blue or red colour of the veins inside the shoulder. The flesh should be dry, and not flabby, and the kidney-fat should be free from smell.

35.—Veal is in Season from May to September; but an occasional supply is obtained at other times, as some cows are required to calve all the year round to keep up the regular supply of milk.

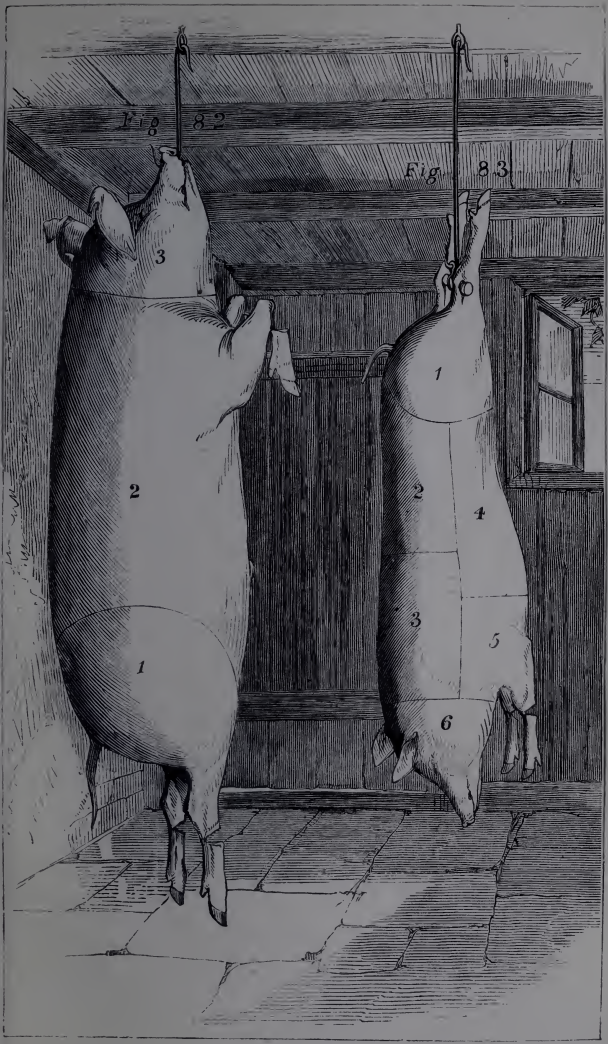
Sect. 6.—Pork.

36.—Pigs are sold by the ordinary butcher, as well as the pork-butcher, at such a variety of ages that their flesh cannot so completely be identified by the age as the animals we have hitherto considered. It first makes its appearance on the table at five or six weeks old, when it is called a *sucking-pig;* after this the animal is respited until it is ten weeks or three months of age, from which time up to six or eight months it comes into the market as *pork.* Then, again, it waits until a year old or more, when it is killed for *bacon-meat* or *hams.* Both pork and bacon-meat vary in quality greatly; breed and feeding being the chief elements in the difference. Dairy-fed pork holds the highest place in public estimation, which it richly deserves when the pig is of a good sort; but this does not always happen. Farmers' pigs, though dairy-fed, are not always confined to that diet; for they are made the

scavengers of the farm, and are allowed to fill themselves upon any filth or carrion that happens to be within their reach. Pigs fed like those of the butchers are hard and devoid of fat, and, unless they are finished with meal and potatoes, they are not to be considered of superior quality. None are better than the pigs fed on the refuse of the mill and starch-factories, where thousands are fattened every year. Bacon-meat may easily be too fat for common use, and the size best adapted for this purpose ranges from ten to fifteen score, with a moderate thickness of fat. For the agricultural labourer bacon can scarcely be too thick in fat, because he uses it as a relish to his bread and potatoes; but this is not the case in the housekeeping of the middle classes, and for them a medium degree is far the most economical and agreeable to the palate.

37.—Pigs are killed by cutting their throats longitudinally, so as not to injure the appearance of the neck or jowl. They are first muzzled to prevent their biting, and their legs tied together, after which they are placed on a raised bench, and their throats cut deeply down into the vessels at the top of the chest. The blood is collected for black-puddings, being stirred to prevent its coagulating. When dead, the hair is taken off either by scalding and scraping (which plan is always adopted for pork, and sometimes for bacon also), or by covering it with straw, and then setting this on fire, and so burning the bristles off, following this up by washing the surface with hot water.

38.—The Cutting-up of the Pig is practised quite differently in different counties, and also in accordance with the purpose for which it is intended. For pork there is not much variation, the carcass being divided into the *leg* (1), *loin* (2), the *neck* or *fore-loin* (3), the *belly* or *spring* (5), and the *hand* (6); besides which, there are the *pettitoes* cut off the leg and hand, and the internals, consisting of the *heart*, *liver*, and *chitterlings*, which last are the small intestines cleaned and prepared for the cook. For bacon the carcass is cut up very variously in regard to the parts which are removed for present use; but, in reference to the parts reserved for bacon, there is only one important point in which different butchers vary their use of the chopper. In all cases the whole outside, with the exception of the head, is reserved for curing in one large side, called a *side* or *gammon;* and in others with the *leg* (*fig.* 82, 1) removed, when the remainder is called a *flitch* (2). The variation depends upon the treatment of the backbone, which is sometimes chopped down the middle, as in the other kinds of meat; in others down on each side of it, leaving the whole backbone entire, with a



THE CUTTING UP OF THE BACON PIG AND THE PORKER.

layer of meat and fat the width of the bone, and the whole being called the *chine*, and reserved for pickling, to use in a green state. But there is also a considerable amount of lean on the inside of the flitch which is removed, the knife being generally carried so as to leave a layer of lean attached to the fat, though in some districts the reverse is the case, and a layer of fat is removed on the surface of the lean. The ribs towards the front are not cut away, generally speaking, but the flitches has a few inches of them left behind and cured with it. The parts thus removed are the *griskin*, the *spare-rib*, and the *bladebone*, the lower part of the hand being left in the flitch. This meat, thus taken out of bacon-pigs, is generally called *pig-meat*, and is used either to roast, as the griskin and spare-rib, or to make into sausages and pork-pies, as the bladebone and general trimming-pieces. When the hog is not too large and coarse, and when it has not been kept too long upon bean-flour, or other heating food, the pig-meat is very well-flavoured and wholesome; but when the reverse of this is the case it often leads to disorder of the stomach, and sometimes to serious mischief. This pig-meat, in the localities where bacon is cured to any great extent, is to be bought at very low prices; but in London and other large towns, where sausages and pork-pies find a ready sale, it is scarcely to be bought under the top price of pork or bacon-meat.

39.—The most Economical Joint in Pork is the leg, though all are much more solid than mutton or beef, and comparatively free from bone. Pork goes much farther than any other meat, one reason for which is, that the fat does not melt away in boiling or roasting to the same extent. It is also generally lower in cost per lb., so that altogether it is the cheapest butcher's meat which can be used in a family; but it will not be found to be wholesome as a regular article of diet, and can only be borne as a change, in which capacity it is much liked by most people, and does rather good than harm.

40.—In Choosing Pork, take a thin piece of the lean between the finger, and if of good quality it will readily yield to a smart squeeze. The colour ought to be rather pale than red. The rind also ought to be thin and delicate. The freshness is indicated by the transparency and freedom from any green tint or unwholesome smell. Measly pork is known by the fat containing enlarged glands, called kernels in the trade, and by the lean yielding little specks of matter on pressure. This is not wholesome, or indeed fit for human food.

CHAPTER III.—HAMS, CURED AND PRESERVED MEATS.

Sect. 1.—Bacon, Ham, and other Salt Meats.

41.—Bacon is sold in London and the large towns and cities by dealers quite distinct from the butchers, under the name of *dealers in provisions*, or sometimes *provision merchants*. Why bacon, hams, and tongues, with butter and cheese, should exclusively be called by this name, is rather singular; but so it is; and the trade is universally recognised by that title in this country. The quality of bacon is very varying, according to the seat of its feeding and curing. The best kinds are the *Wiltshire* and the *Yorkshire* bacon, which are the highest in price and the best in quality; but many other counties cure their bacon in the same way, and rival these far-famed localities in every respect but reputation. The former of these is cured with more saltpetre, and is consequently of a richer red, whilst the latter bacon is paler, and generally more moist. *Irish bacon* is, in general, coarser and inferior in flavour; but some of it is as good as either the Wiltshire or Yorkshire make, and it is frequently sold for them. It is sent to London in sides merely roughly salted, and is then dried here and rendered fit for the market by smoking or otherwise. A great deal of the smoked bacon and hams is dried and smoked in the counties where it is made, but in London, also, part is thus prepared; and no little of it is merely rubbed over with impure pyroligneous acid, which gives it exactly the same flavour at half the cost, or less, and is not prejudicial to health either. Indeed, it is exactly the same substance as is applied to the bacon in smoking, only that in the one case it is used as soon as it is given off by the wood, and in the other it is collected and stored for use, and is then brushed over the bacon by the hand. Green hams and bacon lose about one-twelfth of their weight by drying, more or less according to the extent to which it is carried, and yet foreign smoked and dried hams are sold at a lower rate than those reared in England, which are not so prepared, but which are supposed to be of superior quality. Dried hams or bacon, whenever they are not more than 2d. per lb. dearer than fresh pork, are cheaper than it, inasmuch as the pork loses weight in a variety of ways during the process of curing, and fully equal to a fourth or fifth of the whole. There is, however, generally rather more than this difference, and the careful housekeeper, who has accommodation for the purpose, will cure her own bacon and hams.

42.—The Best Parts of the Flitch, towards the middle of it, sell even higher than the ham, which comes next in price; then the higher and lower parts of the flitch, and finally the hand.

43.—Ox Tongues are sold by all dealers in provisions, either prepared in this country or imported from abroad; and I am afraid a great many of these are really the tongues of horses. They are sent from Mexico and South America in large quantities, and, as they fetch a higher price than the rest of the animal, they are worth curing with care. Some of them are exceedingly well flavoured, but others are dry, hard, and coarse.

44. Salt Beef and Pickled Pork are sold by the butchers, and also by the porkmen, being prepared by immersion in brine, made by simply dissolving salt in water. The price is generally about the same as for fresh meat; the value of the salt being very little, and the weight being neither increased nor diminished by this process. The meat gives out a considerable quantity of blood which stains the pickle, but at the same time it absorbs an equivalent amount of salt and water; so that the seller, although he retains a considerable quantity of useless brine, does not thereby sustain any loss, inasmuch as his articles at the end of a week's immersion weigh as much as at the beginning. When, therefore, the butcher has more beef or fresh pork than he is likely to sell, he drops it into the pickling-tub, and at the end of a week, or less, it is available for any person who wants it for immediate use. Some years ago a syringe was invented for rapidly forcing the salt and water into the pores of the meat, but it has not stood the test of a prolonged trial, and it is now out of use, as far as I know. There is an enormous amount of pickled beef and pork imported, for the use of the navy, from Ireland and the United States; but its appearance is not suited to the tastes of the population of this country, and it does not find a market at any price.

45. All kinds of cured provisions are in the trade bought by the smell, the dealer thrusting a long and thin iron instrument into the part near the bone, and on its withdrawal putting it to his nose, by which he is enabled to judge how it will suit his customers. These latter must, however, generally depend upon their eyes as well, and upon the confidence which they can rest in the provision-dealer of whom they are making their purchase. Few but those in the constant habit can form an opinion worthy of reliance, by any other means than their taste.

Sect. 2 —Sausages, Preserved Meats, &c.

46. Sausages, Saveloys, Polonies, Black-puddings, Corned Beef, Reindeer Tongues, Pork Pies, and a whole host of similar commodities, are sold at the "sausage shops" in London and the large towns, and the quantities of inferior meat thus consumed are enormous. It is well known that in Birmingham, Liverpool, Manchester, and other large manufacturing towns, very inferior meat finds a ready sale at less than half the price of the ordinary quality, and this is soon converted into some one or other of the various forms enumerated above, by the agency of the sausage-machine. The old and hackneyed story of the sausage-maker who suddenly disappeared, and whose fate was only known by the appearance of a button in a sausage some time after, is perhaps an exaggeration; but there can be no doubt that all sorts of meat are supplied to their choppers, and that when pork is dear, or otherwise unavailable, something must be found at a price to suit the market. Farmers can always sell their cows and sheep which they have been *obliged to kill*, if tolerably meaty, and within a given distance of a large market, although there may be a penalty for exposing it for sale; but there is no power of examining the premises of the sausage-maker, and his character is the sole safeguard to those who deal with him. Black-puddings are probably as little adulterated as any article, since it would be difficult to find any other material cheaper than the blood of which they are properly made, and which is generally to be obtained in sufficient quantities. Pork-pies are made and sold in London to an enormous extent; it is said that one maker alone sells from twenty to thirty thousand a day, sending them all over the town in carts for the purpose. They are of very good flavour, and made from wholesome meat, as must of necessity be the case when such large quantities are made up by one establishment. It may answer the purpose of a little sausage-maker to smuggle into his cellar all sorts of trash, but on the large scale it would be utterly impossible to do this, and therefore it is reasonable to suppose that these very popular pork-pies are genuine in their component parts.

Preserved Meats.

47. Preserved meats are chiefly imported from abroad, at all events those suited to the use of our inland population. The process by which animal and vegetable substances are made capable of resisting the usual effects of death, is very similar to that which has long been

adopted in the bottling of green gooseberries, but carried on in a manner more suited to the increased tendency to decomposition. Gooseberries require only to be boiled in bottles and then to be covered from the air while hot, after which they may be kept for a considerable time, the air being however only *partially* expelled. In the meat-preserving process, the flesh is likewise submitted to the action of boiling water, and it is then stowed in canisters, as being cheaper and more safe from fracture, and also more capable of being securely soldered down, and freed from the action of the air. But in addition to these actions, which are exactly similar in principle to the bottling of gooseberries, when the canister is full and ready for sealing, it is again submitted to the action of heat, and by the steam given off all the air is removed, or nearly all, there still remaining a highly-rarified medium. After this it is at once soldered down, and if the process is properly conducted the meat will keep for a very long time, even in warm climates. Meat thus prepared is imported into this country and sold wholesale at about 5d. to 9d. per lb., according to the quality and kind; inferior beef being to be bought at the lower price, and mutton and veal readily fetching the higher rate. Strong mutton-broth and beef-soup are also preserved in the same way, but none of these have been yet introduced into England at such a price as to make them economical substitutes for fresh meat, the price being as nearly as possible the same. The price of the meats in Australia or Moldavia, where they are preserved, is not more than 1d. per lb.; but the cost of the canisters, and of boiling, packing, and importing brings them up to the price at which they are sold here. But the more highly-priced articles, such as turtle, may be, and are, sold at a rate much cheaper than the fresh material. Thus, a quart-tin of turtle is to be bought for 18s., which will suffice to make soup enough for a large party of eighteen or twenty people, with the addition only of some clear stock and condiments amounting to little more than a couple of shillings. Venison, also, for stewing or for pasties, is sold in the same way, preserved in canisters; but as English fresh venison for this purpose can generally be bought at 8d. per lb., no saving is here effected; and the quality is not very good, foreign venison being inferior to our park-fed breed. Preserved vegetables are only suited to sea-voyages, inasmuch as the price is so much higher than our garden produce when fresh. Peas and beans, and other similar garden produce, may be obtained *when out of season*, preserved in this way, cheaper than in Covent-garden market; but the colour is not good, unless it is

artificially produced, and hence the article is not used to any extent in the interior, however well it may be suited for voyages of long duration. There is a prejudice against the use of preserved beef, from the idea that it is composed of horseflesh; but there is no more reason for the use of this article in the preserving of meat in this way any more than in its salting and barrelling. There can be no doubt that horseflesh *may be* substituted for beef in many instances, wherever any kind of curing is carried on, but the object is not very apparent when it is recollected that in the preserving process the tallow is the chief article which brings the money in as a return for the outlay, and this kind of fat in the horse is not nearly of such a good quality as in the ox. If, therefore, it is not the *interest* of the curer to substitute the one for the other, we may rely upon it that it will not be attempted, except as an exceptional case. A horse coming in their way would probably not be wasted, but on the large scale no such substitute, I believe, really occurs. Healthy horseflesh is quite as fit for human food as beef or mutton, and is much more short and tender in the grain than the former food; but the price of well-conditioned horses is higher than that of bullocks nearly all the world over, so that it is useless to entertain the question of its applicability as an article of food so long as this is the case. It is now dearer, and it must remain so, because a horse is a more delicate feeder than an ox, and it will cost more by the time it is fit for food, unless it earns its keep by working in the interim; but if capable of doing this it will be kept until worn out or diseased, and it is then certainly not to be compared with sound and wholesome beef. The microscope does not readily detect the difference between beef and horseflesh, so that there are no means of distinguishing the one from the other, except by the smell and flavour, which to a practised nose and palate are very easily known from one another. Dr. Hassall, who examined several varieties of preserved provisions, did not discover any such substitution; but he himself admits that it would be "of such a nature as to escape detection," but, as he observes, the substitution of the livers or kidneys would be detected by the texture alone, which would readily serve to show the difference from muscular fibre. That gentleman found in his examinations, that out of thirty-four cases of preserved animal and vegetable substances, twenty-nine were in good condition, five being unsound, of which, however, three were vegetables, and one milk; the only failure in the case of an animal substance being mock-turtle soup, in which decomposition had commenced, and it was scarcely edible. The fish

examined by him were all in a good state of preservation, as well as the preserved soups and broths, except only the mock-turtle. In sudden emergencies, therefore, when soup or broth is required for an invalid, recourse may be had to this article; but, as I shall hereafter show, there is nothing like fresh-prepared diet for the sick-room, in all cases; and I believe the only exception is in the case of real turtle, which is prepared in a very delicate way for invalids, and which in that way, or as soup, is a most convenient and cheap form for the use of the sick-room.

48. Olive Oil is also used as a means of preserving fish; sardines and anchovies being stored in this way so as to keep for an unlimited time, the cases in which they are preserved being of tin. *Sardines à l'huile* and *anchoves à l'huile* are now used in large quantities in this country as a breakfast or luncheon relish, especially the former, which form a considerable article of import from the shores of the Mediterranean.

49. Glycerine is a new substance, propounded by its chief makers as the best medium for preserving all sorts of perishable articles. From its composition it is likely to effect this desirable purpose; and as it readily mixes with water, retaining its property of preventing decomposition, it may serve, perhaps, as a convenient adjunct to our already recognised means, being perhaps most usefully applied as an ingredient in our ham and bacon pickles instead of sugar, whose flavour it closely resembles. Oxygen forms a very small proportion of its elementary composition, and to this it most probably owes its preserving powers; that principle being at the root of all decomposition in animal and vegetable substances, so that the more completely it can be expelled, the better is the preservative process. Time alone, however, will settle this question, which at present is only a theoretical proposition, though it is well known that glycerine has an extraordinary power of preserving animal substances from decay. That it will not preserve fruits or vegetables I have proved by experiment; decomposition going on nearly as fast as in water.

CHAP. IV.—VENISON, POULTRY, AND GAME.

Sect. 1—Venison.

50. Venison is the flesh of the red and fallow-deer, and it is used and divided, or cut up, the same as mutton. It is seldom purchased, and

never except as an article of luxury. Pastrycooks, fruiterers, game salesmen, and fishmongers are usually the dealers in this kind of meat, and buy their deer, either bucks or does, from the park-keepers of our nobility and gentry, selling it out in quarters, or sometimes the fore-quarter being divided by them.

51. Venison is a very wholesome and digestible food, closely resembling mutton in every respect but the flavour, which is higher and peculiar to it. This kind of meat is therefore well adapted to invalids if their palates will bear it.

52. Buck Venison is in season in the middle of summer, and doe venison during the winter months.

53. The Price of the haunch of buck venison is usually from two to three guineas. Doe venison and the fore-quarters of buck venison sell for about 8d. per pound.

Sect. 2.—Poultry, Game, and Wildfowl.

Sub-sect. A.—Domestic Poultry.

54. The varieties of domestic poultry brought to table in this country are—1st, *turkeys;* 2nd, *guinea-fowl;* 3rd, *fowls;* 4th, *geese;* 5th, *ducks;* 6th, *pigeons.*

55. General Remarks.—Poultry and game are consumed in considerable numbers in Great Britain, and as a treat or change for more solid articles of diet, or as invalid food, they are of very great importance. In point of economy, however, there is no kind of poultry which will bear comparison with butcher's meat; and it is necessary that the housekeeper should be acquainted with this fact, or she may be deluded by her wishes, or those of her charge, into the belief that she is practising economy when she is really very extravagant. But in spite of this general rule, there are exceptions, owing to the difficulty of keeping all kinds of poultry at the season of the year when they are most plentiful, and when also they are the best in point of flavour. It often happens that a market is overstocked, and that the sellers, after having refused four or five shillings a couple for fowls in the morning, will take two-and-sixpence or three shillings in the evening. If, therefore, the caterer can manage to visit the market at that time, poultry may be frequently purchased at a price which will make it nearly equal to butcher's meat in cost. Yet there is another thing to be considered besides the prime cost, and that is the outlay in stuffing, sauces, and gravies. Turkeys are always stuffed and eaten

with bread-sauce and made-gravy. Fowls require both the two last adjuncts, while geese and ducks are never eaten without stuffing and gravy, and often with apple-sauce in addition. Hence, the whole expense of putting poultry upon the table is considerably more than the mere market-payment, especially when the sauces must be made in an extravagant manner, with plenty of cream. The digestibility of fowls and turkeys is very great, when eaten without a lot of sauces, which, however palatable, are not very wholesome, and therefore, even in families, their use should be encouraged as far as the finances will permit. The price of poultry will generally average from 8d. to 10d. per lb. before drawing, which removes about one-third of the weight, and brings the price up to 1s. per lb., if originally sold at 8d.; or to 1s. 3d., if sold at 10d.; and this is altogether exclusive of the bones, which weigh something considerable, though not in the same proportion as the bone of a rump of beef, or a shoulder of mutton or veal. At this rate the cost is nearly double that of meat, and, allowing for sauces and gravies, quite as much as that. It is, therefore, only by making the most of her carving, and by adding bacon or ham pretty liberally to her dish of poultry, that the careful manager can afford an occasional use of this much-prized article of diet.

Turkeys.

56. Turkeys are reared and fatted by the farmer's wives, mainly, throughout the whole of Great Britain, the largest and best coming from Norfolk, Cambridgeshire, and Suffolk, where they are treated to more food than they like by "cramming" them. The average weight of the cock turkey is about 12lb., and that of the hen 8 lb., the latter being generally considered to have the more delicate flavour of the two. Thirty pounds is not an uncommon weight for a Norfolk cock turkey at Christmas; but these are generally two years old, and harder and more stringy in the legs than the younger birds. They are in season from September till March, and the turkey-poults from that time till June.

Guinea-fowl.

57. Guinea-fowl and pea-hens are eaten throughout England as dainties, but they do not come into the London market to any great extent, nor are they so highly valued there as in the rural districts. They are in season at the same time of the year as the turkey, and resemble it in flavour, though the flesh is not so juicy.

Fowls.

58. Fowls are sold in London under three denominations, viz.: *spring chickens*, *capons*, and *fowls*. The first are the most highly valued, being the produce of very late hatches, and reared with great care, chiefly in the cottages of the poor, who make the most profitable rearers of poultry in most cases. When very small, they often fetch 7s. to 9s. a couple, and afterwards, towards the middle of spring, 6s. is the average price. *Capons* are the young cocks operated on by those who understand the process, and they are thereby made to grow into large and fleshy birds, with a good flavour, and are highly valued. They are in season up to Christmas. *Fowls* generally mean barn-door fowls, or those which have been put up only for a short time. Many people object to barn-door fowls as being poor and devoid of flavour; but if they are young, of good breed, and regularly fed, they are, in my opinion, superior to all others. The Dorking fowl, known by its five toes, is generally considered to be superior to all others for the table; and it certainly is a fine bird, full in the breast, with a great capacity for fattening, and yet without any gross or greasy flavour. But there is none like the game bird for roasting, and for that mode of dressing it is as superior to all others as the pheasant is to the common fowl; but for boiling the colour of the skin is too yellow. The cross with the Cochin China and game is also a very fine and well-flavoured bird, but not equal to the true game in flavour. Bantams, especially those of the game breed, are also very highly flavoured; but they are not often in the market. The Age, next to the breed, is of most importance in choosing fowls; and this may be known by the size and hardness of the spur in capons and cockerels, and by the hardness of the breastbone in them as well as in pullets. It is very often the practice to break the breastbone down, so as to make the breast appear more plump than it otherwise would, and also to make it feel soft to the touch; but it is easy to detect this imposture, and to feel the hardness or the reverse of the projecting keel of the breastbone by pinching it between the fingers, giving it a twist at the same time.

Geese.

59. Geese are reared in large numbers for the feathers they produce, as well as for their table value. They are not, however, considered to pay well by any one who has not the run of common land, as they eat and spoil a much greater quantity of grass than, from their size, could

be supposed possible. The eggs are hatched early in May, and by August the goslings are of fair size, but very insipid and devoid of all the real flavour of the adult bird. They fetch a high price, and are sold to those who indulge their fancies, though it appears a great pity to spoil so good a dish as a Michaelmas goose. From that time to Christmas they are in their prime, and few dishes are better than a well-fed young goose of eight or ten pounds. These fetch from 5s. to 7s. in the London market, and may sometimes be bought at 4s. 6d., but when weighed after drawing they will cost at least 1s. per lb., and cannot therefore be considered economical.

Ducks.

60. Ducks, especially of the true Aylesbury breed, are considered a great dainty by most people. They are bred in great numbers for the London market, and some of them reach the weight of 7 lb. by the time they are six or seven months old. They are brought up in the cottages of the Buckinghamshire labourers, and fetch a high price when they can be taken to market in time for the early peas, 7s. and even 9s. a couple being the ordinary price for early ducks.

Pigeons.

61. Pigeons are kept in countless flocks by some farmers, who kill and send to market a large number throughout the season, which lasts from March to October. The usual price is from 4d. to 6d. a piece.

Sub-sect. B.—Game and Wildfowl.

62. Under this head are comprehended all the wild birds which are captured in this country, and considered good for the table, as well as rabbits and hares. The list is a very long one, when all the occasional species are enumerated; but the following are those chiefly met with:—1st, *pheasant;* 2nd, *black game* and the *capercaillie;* 3rd, *grouse* and *ptarmigan;* 4th, *partridges;* 5th, *quail, landrail,* and *larks;* 6th, *wildfowl;* 7th, *woodcocks* and *snipes;* 8th, *hares;* 9th, *rabbits.*

Pheasants.

63. The pheasant is sold in the open market, as well as in the shops of the game-dealers, at 7s. a brace on the average. It cannot, therefore, be considered as coming within the bounds of domestic economy, and will only be purchased for the sake of an offering to social relations.

Black Game and the Capercaillie.

64. Black game and the capercaillie are still more extravagant, being seldom to be bought under 15s. or a guinea the brace for the former, and 30s. for the latter.

Grouse and Ptarmigan.

65. Grouse and ptarmigan are sold at much lower prices, the former being often so plentiful as to glut the market at a time when they will not keep; and the latter being imported in great numbers from Norway, packed in ice. Grouse, when plentiful, average 3s. 6d. per brace; and ptarmigan from 2s. to 3s.; but the latter are poor in condition, and of very little flavour.

Quail, Landrail, and Larks.

66. Quail, landrail, and larks vary in price too much to require notice. Larks are considered a great delicacy when artificially fattened.

Wildfowl.

67. Wildfowl, consisting of wild ducks, widgeon, and teal, are in season from September till February, but they are seldom plentiful till January, when ducks may sometimes be bought at 2s. per couple; but even then they are not cheap, as there is very little meat upon them. They are very good eating, and are highly valued by the epicure.

Woodcocks and Snipes.

68. Woodcocks and snipes come into season in November, but the locality where they are met with changes from that time till they go out. The high price of cocks, 7s. a couple, forbids their use, except to those who do not need any control of their purses.

Hares.

69. Hares may often be purchased at a price which renders them absolutely worthy of the attention of the good manager. A fine hare, weighing six lbs. when drawn, may be bought for 3s., or even for 2s. 6d., and therefore at 6d. per lb. They are in season from August, when the leverets get very plentiful, until the following March, at which time the does are "in kindle," and the jacks as poor as rakes. The age of the hare determines its tenderness, and this may be known by the toughness of the ear, which readily splits or tears when young;

by the hardness of the jaw when squeezed; and by the length of the claws, which are long and *blunt* in the old hare. The width of the back regulates the condition—a thin hare being a very poor article of diet.

Rabbits.

70. Rabbits, both tame and wild, are sold in enormous quantities; and recently a new trade has sprung up to London from Ostend. Tame rabbits are kept in Belgium in great numbers for their skins; and their bodies, after stripping them of the skin, are brought over by the steamers and sold in London at the pork-butchers'—rarely at the poulterers'; why, I do not know. Some people like their flavour, but I confess that to me it smacks too strongly of the hutch to be pleasant. The price is about 8d. per lb. English tame rabbits, in good condition, are worth a trifle more; and wild rabbits about 1s. 6d. to 2s. per couple.

Sub-sect. C.—Chief Poultry Markets.

71. The chief markets for poultry and game in London, are those of Leadenhall and Newgate, where enormous quantities are sold; more than a million rabbits being now sold in London every year at these two markets alone. Hares, pheasants, and partridges are also sold there in profusion; the market being partly supplied by the poachers, and partly from the legitimate owners. Preserving is now carried on to so great an extent, that unless the game killed were sold, the expense would be enormous; and therefore the owner commissions his keeper, or steward, to dispose of it in this wholesale manner. Poached game is, however, much cleaner and better-looking, and the dealers prefer it, because it catches the eye of the customer in preference to game which has been shot and smeared with blood or dirt. Any one used to the state of properly-killed hares, may easily pick out the snared ones by their starting eyes and swelled heads, and the netted partridges by their unruffled plumage.

CHAPTER V.—BUTTER, MILK, CHEESE, AND EGGS.

Sect. A.—Butter.

72. Butter, as intended for household use, is sold either as *fresh butter*, in which form it will barely keep a week; or *potted*, that is,

made up with a little more salt, and enclosed in tubs or jars, so as to keep for a month, or even more, and called by a variety of names, as *Dorset*, *Welsh*, and *Ostend;* or thirdly of *salt butter*, which is mixed with too large a proportion of salt to be pleasant, but will keep for an indefinite time, gradually, however, becoming more and more rancid.

Fresh Butter.

73. Fresh butter is now sold all over England, at prices varying much with the season of the year, being much cheaper in summer than winter. In London it is called either *Epping*, *Cambridge*, *Aylesbury*, or *Weekly Dorset;* but it is seldom that any butter sold in London really comes from the place with whose name it is identified. The difference in flavour is so small that the retail dealer is hardly likely to buy a quantity of each, and easily gratifies the fancies of his customers by providing them with a differently-named article from the same source, which is that from which he can suit himself at the lowest price, in proportion to the quality. All these butters are now sent to London daily, each dairy forwarding its churning as soon as it is fit to travel, and generally making butter twice a week. The Devon butter is made in a different way (see the next chapter), and the flavour is more creamy than those enumerated above; but it keeps so badly, and is so much damaged by railway travelling, that it is little used in London. The price of *genuine* fresh butter is seldom less than 1s. 6d. per lb. in London, and in the provinces ranges from that price to 1s. per lb. A vast quantity of potted butter, and even of the better kinds of salt butter, is made up into pounds and sold as fresh butter. This is effected by washing out the salt and mixing a large quantity of water with it, by beating it up with great force by the hand. Milk is also sometimes used, but the great adulteration consists in the addition of water. Butter treated in this way tastes pretty well for twenty-four hours after it is purchased, but when kept longer than that time it turns rancid, and has a very disagreeable flavour.

Potted Butter.

74. Potted butter is brought to London and the large towns from Dorset, Wales, Ireland, Holland, and Belgium, packed in firkins, from which the dealers profess to sell it as imported; but it is almost always taken out and washed, and then repacked before it is exposed in the shop for sale. Much of it is sold as fresh butter, at prices somewhat below the genuine *fresh*, whilst the butter which is called

Ostend, and passes as the produce of the previous week's churning, is often at least a month or six weeks old, washed and made up with a quantity of water artificially introduced. Well prepared potted butter is very little inferior in flavour to fresh, and hence it is sold as such; and it is only the second qualities, and the salt butter prepared by washing, with the addition of a little soda, that are offered at the price of potted butter. If potted during the autumn it will keep good through the winter, and many careful managers supply themselves in this way with a well-flavoured article at a low price. According to the analysis of Dr. Hassall, some samples examined by him contained 35 per cent of salt and water; and Mr. Miller, a butter factor of London, asserts that 50 per cent. of water is often incorporated with the butter while in a melted state. This adulteration is easily detected by placing a few ounces of the butter in a six-ounce phial, and melting it slowly at a low heat, as in a water-bath at 130 degrees Fahrenheit, or on the hob of a common fireplace. In an hour or two the salt and water sink to the bottom and form a separate stratum below, the oily matter representing the clear butter, which, on cooling, becomes solid again, leaving the water and salt below with a milky tinge, obtained either from the small quantity of milk left in most butters, or probably from the use of milk in washing and making up these fictitious butters. It has been asserted lately, that flint is dissolved in acid and added to the butter as a means of adulteration; but this requires the corroboration of scientific experiment, and I should much doubt the fact.

Salt Butter.

75. Salt butter, sold as such, is usually the refuse of the salt butter known by that name in the import trade, a vast quantity of which is exceedingly well flavoured, and readily passes, after a little ablution, for the qualities described under the last paragraph, and even sometimes for fresh butter at low prices. In order, however, for salt butter to be bought at the price allotted to it in the trade, it must be of some considerable age, as there is no motive for high salting, except to keep it from the summer to the winter or spring. Butter made during the summer months, may generally be brought from Ireland, Holland, or Belgium, to England within the time during which it will keep good, without adding to it more salt than enough to preserve it for the limited time that potted butter is expected to last good. It is true, that there are some remote districts of the countries from which butter is imported that cannot send their produce to market in less than a month;

but these are the exceptions, and the great bulk of the salt butter is that made expressly for keeping for some months, and thus realizing a high price for a bad article. The English and Irish salt butter comes to market in various kinds of packages; the English generally use a basket, called a *flat*, containing about four or five dozen pounds, or a *box* holding about three hundredweight. The Welsh butter is potted or salted in earthenware crocks, which hold from fifty to eighty pounds. Scotch butter is sent to England in *firkins*, holding half a hundredweight; and the Irish butter is packed also in *firkins*, containing about three-quarters of a hundredweight, or rather more. Salt butter is sold at prices varying from 8d. to 11d. per lb., but it must be remembered that it *always* contains nearly a fifth part of its weight of salt and water, which materially takes off from its value, as compared with genuine fresh butter.

Butter Markets.

76. The best market for butter in the provinces is either in the open market, or very often a particular market-woman who passes the door. This kind of forestalling the market may be considered unfair, but it is very extensively practised, and saves a great deal of trouble to both parties, the price being regulated by the market-price of the day, so that no real unfairness occurs. The butter-shops are the only resource in London, as there is no retail market for butter, though there are some large establishments where such enormous quantities are sold, retail as well as wholesale, as to enable the proprietors to be satisfied with smaller profits than can be afforded by the common shops. Still, as butter travels badly, and is difficult to send home, it seldom answers to go far for this article of daily consumption, and the consumer must content himself with buying it at the best shop within his reach. For the winter, a cask of good Ostend butter, or Welsh, or Dorset, may be laid in, at a price depending upon the locality from which it is obtained, and whether purchased at the retail or wholesale price, and this will serve for all cooking purposes and for family use as well, by which a saving of nearly one-third may be effected—that is to say, if a check is placed upon its extravagant consumption, which servants are apt to indulge in when they have a whole cask to go to at their discretion.

Sect. B.—Milk.

77. Milk, like butter, is a perishable article, being in fact much more so, and only keeping for twenty-four hours in the summer season.

It is brought into the towns from the adjoining grass-districts in large quantities, either by ordinary road-carriage or by railway. There is generally little choice to be had, and the person who has possession of the particular "milk-walk" is generally the only resource. Sometimes, however, there are rivals in this trade, and then there is a somewhat better chance of being well served; but, too often, the best milk which is to be procured is a humble imitation of that which comes from the cow. The consumption in London, Birmingham, Manchester, and the other large towns of England is enormous; and in London, if it were not for the railways, it would be almost impossible to supply its millions with this useful fluid. To the present day, a large number of cows are still kept in the immediate environs of London; but their ranks are thinned considerably of late years, partly from the increased value of the premises in which they are kept, but chiefly because it answers better to bring up the milk by railway. It matters not whether the cows are fed upon lucerne, mangel-wurzel, or grass, still these must be obtained from the land; and as the value of this increases in a ratio with its proximity to large towns, and especially in the case of London, it follows that the cost of keeping cows in or near London is much greater than at such a distance as can be reached in a couple of hours, or less, by rail. If the milk is not sent, the food must; and as the former is much less bulky than the latter when in sufficient quantity to produce an equivalent in milk, the cost of carriage is much less, and the cows themselves are housed at less cost, and are also much more free from disease. A London cow consumes half a hundredweight of green food (besides hay and grains, which may be obtained in London as well as elsewhere), and from this she produces, on the average, twelve quarts of milk; upon which quantity the railroad companies would charge 2¼d., supposing they brought it forty miles, or if a greater distance, 3d. Now, it will at once appear that the increased cost for the above food and housing is much more than the higher of these sums: for no one will bring turnips, mangel-wurzel, grass, or lucerne to London from any distance for 6d. per cwt., they being all bulky articles, and costing considerably more by the time they are actually delivered at the cow-house. In the next chapter will be found a description of the methods of distinguishing rich milk from poor; but it must be remembered that all town-supplied milk is comparatively poor, being mixed more or less with milk from the "black cow." It appears that, in most cases throughout England, milk is worth to the farmers, for making butter and cheese, about 5d.

to 6d. per gallon, and they therefore refuse to sell it wholesale under that price—which is the average of England—and yet it is rarely to be bought by retail any where for less than 2½d. a quart, or 10d. a gallon; and in most of the towns it realizes 3d. a quart, giving a profit to the retailer of cent. per cent., or still more in many cases, as in London, where it is sold at 3½d. to 4d. a quart. But for this a horse and cart must often be kept; and when every expense, and, in addition, the chance of waste, are taken into the account, considering also the time occupied in supplying the customers, the profit is not so great as at first sight might appear. Milk is sold either in the state in which it comes from the cow, called *new-milk*, or when deprived of its cream by standing, and then known as *skim-milk*. In London, only the former can be purchased, at least only of the quality known as new-milk, and charged as such, though probably this is often entirely skim-milk, or at all events mixed with it to a great extent.

Adulteration of Milk.

78. The adulteration of milk has always been considered to be very great—that is to say, it has been believed that not only water but other ingredients were added to milk in great quantities. Dr. Hassall, however, is of opinion that this is a fallacy; and from an examination made by him of twenty-six samples, purchased at various depots or dairies, it appeared that twelve were genuine, two deficient in cream, and eleven adulterated with water only. He states, "that in no case was chalk, size, gum, sheep's brains, or any substance said to be occasionally used for the adulteration of milk, detected." If, therefore, there is no other fraud committed than the adulteration with water, the consumer has only to examine for himself with the instruments described in the next chapter, and then he will of course select the best milk within his reach. Water adulteration is bad enough, but it is far better than that which has been generally supposed to be commonly adopted in the milk-trade.

Sect. C.—Cream.

79. Cream is the oily part of milk uniformly diffused through the whole fluid as first drawn from the cow, and only separating by standing, after which its lesser specific gravity draws it to the surface in a definite layer of greater or less depth, according to the quality of the milk. When new milk is placed upon a stove in deep pans, the cream separates still more completely, and is then called *clouted* or *clotted*

cream, or sometimes *Devonshire cream*, the county of Devon being the chief seat of this method of management. Ordinary and clouted cream are both to be purchased in London, though the latter is only to be met with in particular shops; the price, however, is much above what a corresponding quantity of butter would fetch, and this arises from the difficulty of carriage, as it soon becomes butter by travelling, if it is not carefully enclosed in vessels quite full, so as to exclude the air. The price in London is generally 2s. per pint for cream of good quality; and clouted cream, which is packed in tins, at nearly the same rate per lb. The ordinary quality of cream is, however, very poor, and little above that of good country milk.

Sect. D.—Cheese.

80. This valuable article is made from milk, either *new* or *skim*, or the former with the addition of *cream*. The method of manufacture will be found given in the next chapter; and what we have now to consider is the article as offered in the shops. Great variety is sold of English, Irish, Dutch, and American make, besides some few more rare specimens of Swiss and French manufacture. The following are the chief makes as distinguished in the shops, viz.:—Stilton, Cheddar, Cheshire, Wiltshire, Derbyshire, Gloucester, Irish, Scotch, Dutch, and American, the two last being again known in the trade by distinguishing marks and names, as Gouda, Edam, &c. Some of these, as the Cheshire, Cheddar, and Derbyshire, are more or less coloured with annatto or carrots; but the bulk of the English and foreign cheeses are now unstained by that silly attempt at imparting a rich or creamy colour. All the above cheeses are made of new milk, either by itself or mixed with cream, as in the case of Stilton, which has a considerable addition of the latter. The price varies from 1s. 6d. or 1s. 3d. per pound for Stilton, down to 6d. or 7d. for American and Dutch, of which some specimens are almost equal to our own much-esteemed products of the rich fields of Leicestershire and Nottinghamshire.

Cream and New Cheese.

81. Cream Cheese and New Cheese are both made with the intention of their being rapidly fit for consumption. The former is not generally worthy of the name it bears, being made from new milk rather than cream. (See next chapter.) It requires to be kept about a week before it is fit for use, the time varying according to the taste of those for whom it is intended. As sold in the shops, it is usually

very full of whey, and if this is allowed to remain at the bottom of the cheese it speedily becomes decomposed and unfit for use; but by shifting it from dish to dish daily, and keeping it in a cool place, the bottom remains dry, and the cheese becomes uniformly mellow. It is a very wholesome article, and is in great request in the summer to eat with radishes and other salads. It is called *rush cheese*, *Bath cheese*, and *cream cheese*, indiscriminately; but the *cream cheese* of Devonshire is made of cream and new milk mixed together, and is a much richer article, being in fact little more than clouted cream mixed with a small proportion of curd. *New cheese*, as brought to London and other large towns, is nothing more than a rich cheese of the ordinary make, pressed in a very thin layer of about one inch in thickness, and sent to market before it is more than just settled into the condition of cheese from that of raw curd. This kind is also wholesome to most strong stomachs, but not so light as the ordinary cream cheese.

Stilton Cheese.

82.—Stilton Cheese is made of rich new milk from the best dairy districts, with the addition of more or less cream. It requires keeping for about eighteen months or longer, if it is desired to have it very ripe. The blue or green mould of this cheese, joined to a very high flavour, and rich, yet not tough consistence, are the chief good qualities to be sought for. There is a great range in price proportionate to age and quality, and as it is considered the best cheese made in this country, it is natural to suppose that the dairies which produce the "*la crême de la crême*" should command a high price. It is, however, difficult to foretell how new Stilton may turn out on ripening, and therefore the buyer will do wisely, unless he knows the character of the dairy from which it comes, to postpone his purchase, and to buy only the cheese in a state fit for the table. The price is a little higher in proportion, but then it will always give satisfaction.

Cheddar, &c., Cheese.

83.—Cheddar, Derbyshire, and Wiltshire Cheeses, as well as many of the Gloucestershire make, are very different in flavour to those made at Stilton, or called by that name. They are much stronger and more full of pungency, so that a smaller quantity serves the purpose; and they are also lower in price, seldom rising above 10d. or 11d. per lb., even of the best quality. They are almost always made in thick cheeses, but they vary in diameter very considerably; the Cheddar,

Cheshire, and Gloucester being large, and the Derbyshire and some of the Wiltshire small.

Irish, Dutch, and American Cheese.

84.—The Irish, Dutch, and American Cheeses vary immensely in quality, in flavour, and in size. Some of the Dutch and American resemble one another closely, being large and rich, without colour, and making capital toasted cheese. The American cheese is made and pressed in such a careless way as to be generally full of holes, by which the air is admitted to it in an unripe state, and the consequence often is, that it becomes partially sour. If this could be avoided, many of their cheeses would compete successfully with our Stiltons—of all but the very first quality, which are, as yet, unapproached in their peculiar good features by the cheese of any country whatever, as far as my experience goes. The round Dutch cheeses are generally very hard, poor, and dry; but some are exceedingly high-flavoured and rich, and almost equal to Stilton in every respect. These however are rare exceptions, and no one in buying one at an ordinary shop can expect to be favoured with such an article at the low price at which they are sold, which is often half that of good English cheese.

Household Cheese.

85.—The Ordinary English Household Cheese is made from a mixture of skim and new milk, varying a good deal in the proportion of the latter, and also in its quality. In some counties the cheese is almost all made from skim-milk alone, and is then hard, dry, and indigestible. This cheese will not melt by heat, but shrivels up, and becomes hard and unfit for the stomach.

Parmesan, Gruyere Cheese, &c.

86.—Parmesan, Gruyère, and Neufchâtel Cheeses are little used in this country, and scarcely require a detailed description.

Adulteration of Cheese.

87.—Cheese is not adulterated to any extent, the only article mixed with it being the annatto for the sake of colouring.

Buying Cheese.

88.—In buying and selecting cheese by retail, it is usual for the purchaser to taste the various samples, the seller using a *taster*, which

is a long semi-cylindrical scoop of iron, thrust into the cheese and bringing out a long plug of it, the end of which is used for tasting, and the remainder with the rind is afterwards taken out of the taster and pushed into the hole made by it, so as to exclude the air and preserve the appearance of the cheese. In this way every cheese is offered to the retail buyer; but in the wholesale trade the sense of smell and the effect of a hot iron are the only agents employed, some cheese-brokers never by any chance admitting cheese into their mouths, alleging that the so doing would destroy their powers of discrimination. The sense of smell is undoubtedly less easily imposed upon and surfeited than that of taste, and this may be one reason why they adhere to it in preference to the palate. Good and experienced housekeepers, who have convenience for keeping cheese, and live near a dairy district, generally lay in a stock in the autumn to last the whole year, because the farmers then send their produce to the cheese fairs; but those who live in towns cannot do this, and they generally buy a quarter or half a cheese at a time, and then it should be fit for use. When more is bought than is absolutely wanted at the time, the part not required for use should have a piece of buttered paper tied over the cut part, and the whole should then be wrapped up in thick brown paper and deposited on the stones or bricks of a cellar, with an earthen pan inverted over it to keep off the attacks of mice, &c.

Sect. E.—Eggs.

89.—Eggs are so generally wanted in housekeeping that it is very important to be able to obtain them in a state fit for use. It is therefore desirable to buy them when fresh laid, if it is possible to be certain of this, and lay them by for future use, preserving them by the process mentioned in the next chapter, under "Poultry." But this method is now so well understood and practised by the dealers, that in all respectable shops tolerably sound and useful eggs may be purchased at all seasons of the year, though not fit for breakfast use. A great proportion of our eggs are imported from France, about one hundred millions crossing the channel every year. Really fresh-laid eggs are rarely to be met with in the shops of London, although many people warrant them as such; but the difficulty in meeting the demand is so great that it is no wonder, in these days of substitution and adulteration, that an egg only a month or two old is passed off for a much younger brother. The flavour is somewhat different, but the

thing is the same, and so the seller quiets his conscience more easily, perhaps, than the man who vends wine which has never seen the sea, as the produce of Spain, Portugal, or Germany.

Selection of Eggs.

90.—In choosing eggs, it is usual to test the freshness by putting the large end to the tongue, when, if it feels warmer than the other end, the eggs are considered fresh. This depends upon the bubble of air being a bad conductor of heat, and holds good as between an addled egg and a sound one; but I doubt whether any one by this test alone could distinguish a new-laid egg from one a month old. As long as the vitality of the egg remains and the air vesicle is entire, so long will the warmth be apparent; but when this ceases, the air vesicle shrinks, the two ends assimilate, by the development of another at the opposite end, and the test no longer applies. New-laid eggs can only be selected by the *bloom* on the shell, which to a practised eye is apparent, and which is destroyed by oiling or immersion in lime-water, but not by packing in bran. Therefore it is also to a certain extent fallacious, as carefully-packed eggs, kept for a month or more in bran, will look very inviting, and yet be stale to the palate. There is, in fact, no certain test, and the character of the vendor is the sole guide in this kind of marketing. Country eggs may generally be bought at the farm or cottage at a little more than one halfpenny a-piece—say eighteen or twenty for a shilling, during the spring and early summer. In London, and other large towns, during the winter they are from eight to ten a shilling.

CHAPTER VI.—FISH.

Sect. 1.—General Remarks.

91.—Fish form a most important article of diet, not only for the invalid, but for all those in sound health who require some little change in their daily food. It is certainly not so strong and nutritious as butcher's meat, or even poultry, but many kinds are sufficiently nourishing to preserve health, in conjunction with potatoes and meal; and, when taken alternately with meat or bacon, fish seems to agree remarkably well with most constitutions. In our summers, and in

warm climates, fish is particularly well suited to the wants of the system, inasmuch as it contains less stimulating properties than butcher's meat; but, at the same time, it must not be forgotten that it requires a larger quantity of it to satisfy a hearty appetite, and that being rapidly digested it will not "stay" the stomach long before the next meal. Fishes have been used as the food of man from the earliest ages, and Aristotle and Pliny wrote elaborate treatises on their characters and habits. Since their time, however, many succeeding writers have developed our knowledge of the structure of these creatures, and they are now arranged in natural groups according to their internal formations. All true fish have cold red blood, with a skeleton either of bone or cartilage; and they all renovate the oxygen in the blood by means of gills, which bring that fluid into near contact with the air contained in the water they inhabit. They live but a short time out of the water, though some, as the eel and carp, can maintain life in the air for a considerable number of hours. The composition of the skeleton is one chief ground of subdivision, inasmuch as one division or group have bony, and the other cartilaginous, skeletons. These, again, are subdivided to an enormous extent by various distinguishing traits, as the existence or not of the gill-cover, which separates the cartilaginous fishes into two sections, including in those which want this addition the lamprey, lampern, skate, and shark, whilst the eel and the sturgeon possess it tolerably well developed. The bony fishes are divided into orders, from the situation of the fins, which with the tail are their only organs of motion. These vary their position in a remarkable manner, as, for instance, in the eel-pout and haddock, which have the ventral fins placed before the pectoral, whilst they are directly under them in the bream, the perch, and the mackerel, and behind them in the salmon, pike, herring, and carp. The muscles of fish are somewhat different from those of warm-blooded animals, consisting of white or pale layers of fibrous tissue, of a thicker texture than those of mammalia, and having between them layers of a white gelatinous substance, which rapidly decomposes after death. The brain and nervous system are small in comparison with the size of the body, and the ganglia are very much separated from one another. Hence it is argued, with some degree of probability, too, that they are not capable of feeling so acutely the lacerations and other injuries to which they are subjected; and this is a very important point for consideration when it is remembered how some of them are cut in crimping; others skinned alive, like the eel; others, again, are boiled to

death, by putting them first in cold water, as is done with the lobster and crab, to prevent them throwing off their claws. The organs of seeing and smelling seem perfect enough; but the senses of taste and hearing are at a very low ebb, none but the cartilaginous fishes having even an external opening to the ear at all. Most of this tribe lay their eggs by spawning, which are afterwards hatched, and produce young fish; but some of the cartilaginous fishes are viviparous. Their productive power is very great; some, as the codfish, having been known to contain nearly a million and a half of eggs.

92. For the purposes of human food, fish may be considered under five heads—1st, *river fish;* 2nd, *pond fish;* 3rd, *sea fish;* 4th, *shell fish;* and 5th, *dried and salted fish.*

Sect. 2.—River Fish.

93. In the use of River Fish, more perhaps than in any other, great waste is committed, arising chiefly from the fact that the young fry are much more easily captured than their older and more wary progenitors. From the boy with his willow rod to the poaching fisherman with his fine meshed net, all but the real and fair sportsman conspire to destroy river fish, long before they arrive at full maturity either of size or flavour. It is now at last discovered that it is necessary to take some care of these defenceless young animals, and hence the numerous conservative associations which have been formed all over the land, in many cases with a most gratifying result. In addition to these means an attempt has lately been made to breed fish artificially; but it is so completely in its infancy that it is scarcely fair to form any opinion as to its advantages in an economical point of view. Our present purpose is to describe those fish which are offered for sale in our fish-markets, or sometimes only at the places near where they are caught. The list is not a very long one, comprehending: 1st, the *salmon;* 2nd, *salmon* or *sea-trout;* 3rd, the *bull-trout, sewen,* or *whitling;* 4th, the *common trout;* 5th, the *grayling;* 6th, the *pike* or *jack;* 7th, the *bream;* 8th, the *roach;* 9th, the *dace;* 10th, the *barbel;* 11th, the *gudgeon;* 12th, the *perch;* 13th, the *ruffe* or *pope;* 14th, the *flounder;* 15th, the *eel;* 16th, the *lamprey* and *lampern;* and 17th, the *shad.* The parr, minnow, loach, stickleback, bullhead, and bleak, are river fish, but are not fit for the table, either from their want of size or flavour. The sturgeon, rudd, and azurine, are too rare to need description here.

Salmon.

94. The common Salmon is by far the best-flavoured of all river fish in the estimation of most people; it is of great size, sometimes weighing 50 lb. or even 60 lb., and of beautiful proportions. It is not confined to rivers, but migrates to the sea during a portion of every year. The head is small; upper jaw longer than the lower; vomer furnished with teeth; body slightly arched on the back, which ought to be broad and muscular, and gradually tapering to the tail, which is broad, and ends in a crescentic curve. The colour of the salmon, when in season, is a purplish black on the back, softening into a silvery grey on the sides, and ending in a pure white on the belly. The male has several small irregular and copper-coloured spots on his sides; those in the female are generally larger, darker, and more round or lunated. The male is also more slender. The scales are of middle size, very silvery, and easily detached. The average length is from two to three feet. Salmon feed greedily on fish and mollusca, and digest their food so rapidly, that when opened their stomachs are generally found empty. Their growth is proportionate to the quantity of food which they can procure; and when they reach the sea, where it is abundant, they increase in size in a marvellous manner during a very short period. The successive stages of development are as follows:—The fry are hatched chiefly in the spring and early summer, though some few appear to be produced at almost all seasons of the year; they grow slowly till they are a year old, up to which time they are called *salmon-fry*, and have several transverse bars on the sides resembling those of the parr, which, however, appears to be undoubtedly a separate and distinct fish. When these bars disappear, and the young fish becomes uniformly silvery in colour, it is about to commence its first migration to the sea, and is called *a smoult*. When the smoult has entered the sea it remains there from two to four or six months, increasing rapidly from a few ounces in weight to two or three pounds, and being then called *a grilse*, in which condition they re-ascend their native rivers if possible, and after abiding there till the next migration (during which time they often, but not invariably, spawn), they again descend to the sea, and acquire a second rapid increase in weight and size; after which they arrive at the full honours and dignities of their tribe with the name of *salmon*. Their size, however, does not entirely depend upon their age, but partly upon the stream in which they were spawned, some rivers never producing large salmon, while

others are remarkable for them. The *fence months*, when it is illegal to take salmon, vary in the different rivers; but in most of them that time extends from the 10th of September to the 25th of January, and during those months, as well as for some time after, the fish which may be offered for sale are spent after spawning, and not fit for human food. These may be known by their lantern jaws, narrow backs, and general look of flaccidity. Salmon are brought to the London market from the rivers of Scotland, Ireland, and Norway, packed in ice, and some few from the Severn and Wye. The flesh is of a rich yellowish-pink colour, very full of condensed albumen when crimped, which is a practice very common in this fish, and which is effected by scoring the fish deeply to the bone at intervals of about two inches apart, after depriving it of sensation by a blow on the head. It is then placed for about twenty minutes in water, and when boiled its consistence is quite different to the oily and rich flavour of the ordinary "flat" fish. The retail prices are sometimes as low as 7d. or 8d. per lb., at which price it is a tolerably economical article of food, being free from bones, and very satisfying and full of nourishment, but not very digestible to a weak stomach. The average price, however, is about 1s. 6d. per lb.

Salmon-Trout.

95. Salmon or Sea Trout is only distinguished from the true salmon by the formation of its gill-cover, and by the teeth, which are more numerous and slender. Th flesh of this fish is very similar in favour and colour to that of the common salmon, with which it is generally confounded, as the two are sold indiscriminately as "salmon" by the fishmongers of England. They are also alike in breeding, migrations, and other habits.

Bull-Trout.

96. The Bull-trout, Sewen, or Whitling, is also chiefly distinguishable by the gill-cover from the preceding species, the teeth also being larger and stronger. This variety is found in several of the rivers of Wales, Devonshire, and Cornwall. In weight it is rarely above 16 lbs., and its flesh is paler and of less flavour than that of the common salmon and salmon-trout.

The Common Trout.

97. The Common Trout is distinguished by having its lower jaw longer than the upper. It weighs from half a pound, or less, to four

or five, or even in rare cases to eight or nine pounds. Its ordinary length is from 10 to 18 or 20 inches. In shape it is not so elegant as the salmon, but it is nevertheless a very beautiful fish. The snout is more blunt, and the jaws are thickly supplied with teeth inclining inwards, and very sharp. In colour it is of a pale yellowish-grey, darker on the back, and nearly white on the belly. It is marked on the sides with several distinct round spots of a bright red colour, each surrounded by a halo of pale grey; occasionally a black spot occurs, especially on the fins. These are of a purplish-brown colour, except the ventrals, which have a reddish tinge. Trout vary so much in the different rivers, that no minute description will apply to all, but the above gives the general characteristics of the species. The trout resembles the salmon in all its habits excepting only its migrations to the sea; it is in full season from March to July, but the time varies in different rivers so much that it is impossible to lay down an invariable rule. When in high condition the spots are peculiarly brilliant and distinct; the head is small, the body being plump and thick, and the belly silvery. The flavour of this fish is highly valued; but it is not to be compared with the salmon, and it is objectionable to many people on account of its bones, though these are not so troublesome as the bones of the herring, or of many other fresh-water fish.

The Grayling.

98. The Grayling is found only in certain streams, and more particularly in those descending from granite mountains. It is a very elegant fish, of middle size, seldom exceeding 15 or 16 inches in length, and slender in proportion; though in some few cases graylings have been taken of from four or five pounds weight. The head is small, the upper jaw the longer of the two; teeth small, and spread over the roof of the mouth: the colour of the back varies from a blackish-green to blue, gradually shading into a silvery-grey towards the belly. When first taken there are several black spots on the back, and some irridescent patches of gold colour on the sides, which appearance rapidly fades, and the general colours soon sober down after its capture and removal from the water. The scales are large in proportion to its size. The season is from September to March, after which they begin to spawn. They do not bear travelling or keeping with impunity, and can only be eaten in perfection within a few miles of their native rivers; but they are then of very delicate flavour, and are considered by many people to be superior to trout.

Pike, or Jack.

99. The Pike, or Jack, is a very voracious fish, met with in the gently-flowing rivers and ponds of Great Britain. It is called a pike when above four or five pounds in weight, and a jack if of less than that size. This fish is very ugly-looking, the head being large, the jaws long and savage-looking, and armed with several hundred teeth; the tail is lunated; colour, a pale olive-grey, becoming deeper on the back, and marked on the sides with several yellowish spots or patches. Sometimes the pike reaches an enormous size, instances having been known in which it was taken more than three feet in length. The food of the pike consists of fish, frogs, rats, the young of water-fowl, or in fact any thing in the shape of animal food. They spawn, in March and April, among the weeds of their favourite haunts. Like all other fish, they are only in season for the few months before this process is commenced. The flesh is white, and of a good flavour, resembling the haddock, being, when stuffed and roasted, a dish fit to be placed before even an epicure

Bream.

100. The Bream is more like a flat-fish than any other fresh-water fish except the flounder. It is very narrow across the back, which, as well as the belly, is much arched, forming altogether almost an oval. It frequents still water, like the pike, and is often in the same rivers and ponds. The head is very small, with a pointed snout, small mouth, and no teeth. The colour is bluish iron-grey on the back, inclining to white on the belly. The bream is rarely above a pound and a half weight, and is not highly prized for the table, though, when stuffed and roasted like a pike, it is not to be despised.

Chub.

101. The Chub, also called the Chevin and the Skelly in the different counties of England, is a powerful fish, very timid in its nature, and retreating to the deepest holes of the river in which it is found, on the slightest appearance of danger. In weight, it is from one to four pounds; in shape, short, thick, and high-backed, with large scales; in colour it is greenish-brown on the head and back, silvery-brown approaching to yellow on the sides, white on the belly, pectoral fins yellow, anal red, tail of a reddish colour and forked. The chub spawns in April, but very soon recovers from that process, and is in season again in June. It frequents deep rivers running through alluvial dis-

tricts, and lives chiefly upon worms. Its flesh is not of very high flavour, but when stewed in rich gravy it makes a very savoury dish. Nevertheless it is not generally in high repute for the table.

Roach.

102. The Roach, or Braise, inhabits the same kind of rivers as the chub, and is a gregarious fish. It has a small round leathery mouth, provided with a circle of teeth placed in the throat. It is as deep, but not so thick, as the chub; scales large; colour of a pale golden tinge, approaching to brown on the back; fins red, as also is the iris. The flesh is tasteless and full of bones, and the fish is not valued for the table, though perfectly wholesome.

Dace.

103. The Dace, or Dare, is also a gregarious fish. The head is small, body slender, tail forked; colour, dusky on the back, varied with patches of pale olive-green, sides and belly silvery, fins reddish, but not so much so as the roach. It is about nine or ten inches long; its haunts are unlike those of the roach and chub, inasmuch as it prefers swift and gravelly streams, but selects those which are thickly infested with weeds. It is very generally found in the rivers of England, but is not highly esteemed for the table, being devoid of flavour and full of bones.

Barbel.

104. The Barbel, so named from its beard, which consists of four distinct prolongations, two on each side of a very prominent upper lip, frequents deep but rapid rivers, and is a gregarious fish, feeding on insects and worms. The colour is a silvery-grey, being darker on the back, and white on the belly; scales of middle-size, and rounded; dorsal fin small, and of a bluish-brown; other fins brown, tipped with yellow; tail forked, and of a purplish-brown. The flesh is capable of being dressed to advantage, but under the ordinary arrangements of cookery is tasteless and poor.

Gudgeon.

105. The Gudgeon, though small, is highly prized for its good flavour. It is gregarious, and is taken in immense numbers in the neighbourhood of London, not only in the Thames, but in the other rivers of Middlesex and Surrey. Gudgeon rarely come to the surface of the water, but frequent the bottoms of rapid shallows with a gravelly soil.

This fish has a small beard on the upper lip; it is about five or six inches long, with a round body and a thick head. Colour, pale-brown on the back, and reddish-white on the belly; fins slightly tinged with reddish-yellow, the dorsal and tail-fins being spotted with black.

Perch.

106. The Perch is a very handsome fish, of medium size; body deep, with high arched back; head small, with sharp teeth in the jaws and the roof of the mouth. The edges of the gill-covers are serrated with a spine on the lower part. Colour, as follows:—Back, deep olive-brown, with broad black bars gradually becoming white towards the belly; ventral and anal fins of a rich scarlet, as also is the tail, though not so distinctly of that colour. The dorsal fin is furnished with spinous prolongations, so sharp that it can scarcely be handled with impunity. It thrives best in large tidal rivers, where it prefers the point at which the water is usually brackish, and grows there to an extent never seen elsewhere. In stagnant ponds it will live, but does not thrive. It is a slow-growing fish, requiring many years to arrive at its full size; it spawns in March and April. The perch is a gregarious fish, very tenacious of life, and its flesh is full of flavour and also of bones, which are, in fact, the great drawback to the enjoyment of all small river fish.

Ruffe or Pope.

107. The Ruffe, or Pope, is generally considered to be a variety of the perch, but it differs from that fish in colour, being of a dusky olive with black spots; and in its generic and anatomical arrangements. It is very abundant in the Thames, but is not prized as an article of diet, being chiefly confined to the tables of the poorer classes, to whom it is sold at a very low rate.

Flounder.

108. The Flounder is met with in the Thames in great numbers, being a flat-fish of moderate size, and seldom reaching to more than two pounds in weight. The upper part is of a dirty brown, with a few dusky-yellow spots; belly white. It has a row of sharp small spines surrounding the body, and between it and the fins, by which it may be distinguished from other flat-fish. It is highly valued for making the dish called *water-suchet*.

Eels.

109. Of Eels there are three varieties met with, the distinction merely depending upon the shape of the nose. In length they are from one to three feet; colour, on the back, varying from a dark olive to a light brown; belly always white and silvery, especially in the silver-eel, a variety peculiar to some rivers. Head flat, and jaws more or less elongated, but the lower jaw always the longer; eyes very near the mouth, and small, with a reddish iris; gill-opening set far back, and close to the temporal fin. The eel is now ascertained to spawn in the sea, for which purpose it descends from its usual haunts, and visits the ocean. It has the power of overcoming all obstacles, because it can leave the water, and, by its serpent-like form, travel over or round any flood-gate or mill-dam in its course, whether up or down stream. It generally chooses dark stormy nights for this purpose; and its migration downwards takes place in the months of August, September, and October, during which time eels are taken in large numbers by the millers throughout the kingdom, who set their nets at the chief water-courses. Eels are generally considered to be viviparous; but they seem, like many other animals, sometimes to produce their ova already hatched, and at others to eject them with their contents still in an embryo state. The young first appear on the coasts in March and April, and are then seen in countless myriads. They soon ascend the rivers, and by various devices they surmount the flood-gates and weirs, which impede the progress of other fish; sometimes the millers put straw-ropes to assist them, up which the young eels swarm in great numbers. While ascending the larger rivers, they may be seen in double columns, one close to each bank, swimming with great power and speed. They are then from half an inch to an inch in length. The eel is a very voracious fish, feeding upon all kinds of garbage, and upon small fish, frogs, rats, &c., chiefly by night. During the day it lies under stones, or stumps of trees, or in the mud, and can seldom be seen. It is a most delicious fish, rich, and yet easy of digestion, and second in flavour only to the salmon among the river fish.

Lamprey.

110. The Lamprey and Lampern both belong to the cartilaginous fishes, and, instead of the ordinary gills, they have seven openings on each side of the head, which allow of the escape of the water by means of which they oxygenate the blood. The lamprey is in general appear-

ance very like the eel; but, instead of the flat mouth which that fish exhibits, the lamprey has a sucking apparatus by which it attaches itself to stones, roots of trees, or piles, and then lies with its body quite at rest, except as moved by the current. It is capable of swimming with considerable velocity, and migrates from the sea to certain rivers, which latter it visits in the winter and spring, and returns in the summer to the sea. It is in high season in March, April, May, and the early part of June; and it is then taken in considerable numbers in the Severn, and more sparely in the Thames. It is highly prized as a dainty, and is generally stewed or potted, requiring the addition of strong spices to make it fit for a delicate stomach. The price is generally about 2s. to 2s. 6d. per lb. *Lamperns*, though similar in conformation, are much smaller, being seldom more than a foot in length, and in diameter about a third to half an inch. They also visit the sea, and are found in large numbers in the Severn and Thames, in which latter river they are eagerly sought for by the fishermen to serve as a bait for other fish. The price is generally about half that of the lamprey, or sometimes very much less, lamperns being usually sold by the score.

Shad.

111. Shad are migratory fish, which enter some few rivers, as the Severn and Thames, for the purpose of spawning, and are only in season for about a fortnight, that is, just before performing that duty. They have a good deal of the flavour of mackerel, with the richness of the salmon, and when eaten in good condition are very much admired by, and well worthy the attention of, the epicure; but after this they are poor and devoid of all flavour, so that large quantities are sold at nominal prices to the poorest inhabitants of the low districts near the Thames.

112. These River Fish, with the exception of the salmon, eel, lamprey, and flounder, are not generally to be met with at the stalls of the fishmonger; and, if they are desired, they must be sought for at the cottage of the nearest fisherman. They are seldom to be obtained at a price which renders them as economical as sea-fish, nor are the bulk of them very desirable in any point of view. The salmon and the eel are, however, exceptions, and equal any sea-fish in their nutritive qualities, whilst they are superior to most in flavour. When these can be obtained at low prices, they are worthy the attention of the caterer, and should be sought for with avidity, taking care that too

much at a time is not eaten by those who are not able to digest such rich aliment.

Sect 3.—Pond Fish.

113. The above class of fish are met with in ponds and other still water, as lakes and torpid rivers, but do not thrive well in any situation where they are exposed to rapid changes of water, as in quickly-running streams. These fish may be reared to a proper age in ponds, where they may be kept till they are wanted; and, as they are generally only there preserved for the use of the proprietor of the water, and can be taken at any time by the net cast and drawn through the pond, they very seldom find their way to the fishmongers' stalls. Hence, they scarcely come under the head of articles bought at market; but as they are the only exception, it is scarcely worth while to separate them from this division of the subject. They consist of:—1st, the *great lake trout;* 2nd, the *char;* 3rd, the *gwiniad, powan, vendace,* and *pollan;* 4th, the *carp;* and 5th, the *tench.*

Great Lake Trout.

114. The Great Lake Trout resembles the salmon in all respects but its migrations to the sea; and even in size it nearly approaches that magnificent fish. Its flesh, however, is not quite so well-flavoured, and is of a paler colour. It is found in the Scotch lakes, and is highly valued in that country as a table delicacy.

Char.

115. The Char is known as the *silver char,* the *gilt char,* the *red char,* and the *case char,* according to the peculiar shade of the colour, which varies much in the different lakes of Scotland and Ireland, where only it is found. It is a beautiful fish, of medium size, and very delicate flavour, but from its rarity it does not often appear at table.

Gwiniad.

116. The Gwiniad, Powan, Vendace, and Pollan, all belong to one genus (*Coregonus*), and are each peculiar to certain lakes in Ireland, and Scotland, and also to those of the north of England. The first is common to all; the second is found only in Loch Lomond and one or two other Scotch lakes; the third is met with generally in Scotland; and the fourth is peculiar to Lough Neagh, in Ireland. They are all nearly allied to the *salmonidæ,* but have prolonged snouts resembling the

herring, from which circumstance the gwiniad is also called the fresh-water herring. They are taken with the net, and are highly esteemed as articles of food.

Carp.

117. The common Carp, though now universally met with in the ponds of England, is not a native of this country, but was introduced by the monks to serve as an article of diet allowed to them during their fasts. In length it is usually from one foot to one foot six inches. The back is arched and thick; colour yellowish, approaching to brown over the back, and to white under the belly, with some blackish specks on the side. The mouth has a short beard on each side, both above and below. Fins and tail brown, the latter being forked. The carp feeds on worms and insects, and lives to a great age, being also very prolific. It is a fish which requires good sauce to make it palatable; but when well dressed it will tickle the fancy of others besides those who originally appropriated it to themselves. The *crucian* is only a variety of the common carp.

Tench.

118. The Tench, like the carp, has been naturalized in this country from abroad, having been introduced for the same purpose. It is a thick fish, resembling the carp in shape, and having a small thin beard at each corner of its mouth. Like the carp, it has no teeth. Gill-covers, bright yellow; body, deep olive, with a tint of gold; scales small, and covered thickly with a viscid slime. Fins of a dark purplish-brown; tail square. The tench spawns in the spring among the weeds of the ponds, in which it rejoices, and the young fish grow rapidly, so that a pond is soon stocked with them. The flavour is very superior to carp, and is equal to any fresh-water fish but salmon and eels, not even excepting trout or grayling. The skin is very gelatinous, and is considered to resemble that of the turbot in flavour and consistence.

These fish, as I before remarked, are seldom to be purchased at the fishmonger's, and they must be obtained, if wanted, either by preserving in a pond, or other piece of artificial water, or by taking the trouble to obtain them from those who have such a convenience. In secluded country districts where sea fish are scarce, and where fish of some kind or other is considered indispensable, as, for instance, in Catholic families, the carp and tench supply a want which it is other-

wise very difficult to comply with. By obtaining the command of a moderately large pond, they may be reared and fed so as to serve as a regular diet when wanted; but this can only be done by making a succession of fish-ponds, commonly called stews, so as to avoid disturbing the breeding-ponds on every occasion when the net must be cast. But by setting apart one or two small stews, as they are called, and then dragging or letting off the water from the principal ponds once or twice a year, the large fish may be taken out and placed in the stew until required, leaving the small ones and the breeding fish till another year, or even longer. If these fish are kept in any number in a small piece of water, especially if the surrounding land is poor, and there are few worms and other insects, a supply of artificial food must be afforded, consisting of bread and greaves, or barley-meal and greaves boiled into a thick and strong pudding, and then cast into the water in irregular lumps of the size of an orange, at intervals of a day or two. If this is regularly done, the fish become very tame, and will even come and feed out of the hand.

Sect. 4.—Sea Fish.

119. These denizens of the sea are of far more importance to the housekeeper than the various river and pond fish, which have been described in the previous sub-sections. Some of them form very economical articles of diet for all classes, and are also advantageous to health when used alternately with meat; or when employed alone by the very poor, they may be considered as superior to potatoes and buttermilk, and as constituting a good change from oatmeal porridge. Sea fish are now brought to all our large cities in immense quantities, and London is supplied from a variety of sources with hundreds of thousands of tons per annum. Indeed it is notorious, that in the metropolis fish may be generally bought more cheaply than at the seaside where it is caught, unless there happens to be such a glut there that the means of carriage are not at once available. Billingsgate is the only wholesale fish-market in London, and it is now tolerably well adapted to the object for which it is intended, having been rebuilt in 1851-2. It consists of two stories, an upper one level with Thames-street, where the ordinary kinds of fish are sold, and another beneath this devoted entirely to the sale of shell-fish. Here all the fish intended to supply at least four millions of people is daily offered for sale, beginning at three o'clock in the morning, and the market being over by eight, or nine at the latest. The fish are consigned to salesmen, who fix the

price according to the supply, and also to the demand, and thus on two consecutive days the same kind of fish may vary at least 100 per cent. The four millions above alluded to comprise the population of London and its suburbs, and also the many inland towns of the south of England, which depend upon Billingsgate for their fish supply. A great proportion of these fish is brought up by rail, chiefly by the Eastern Counties line, from the Yarmouth district; but the others also contribute their quota, the Great Western conveying large quantities from the Devonshire and Cornish fisheries. These have all to be conveyed in vans from the stations to Thames-street, where they may be seen in the early morning blocking up the entire street. On the river side, again, are to be seen every variety of small rowing and sailing boats disgorging their cargoes, and some of them selling their fish direct to the retailers without the intervention of the fish-salesmen in the market. Peter-boats, smacks, barges, wherries, and even steam-vessels crowd the wharf, and the apparent confusion is beyond the conception of those who have not witnessed the scene. With so perishable an article, and so shortlived a market, great exertions must often be made to reach the scene of operation; and as the sailing vessels are often unable to manage the feat, they employ a set of watermen to row up their cargo in large wherries from the point where they think it necessary to make up their minds to the extra expense incurred by a shift of wind. These men sometimes row from forty to fifty miles in one tide, with a deeply-laden boat; and in order to do this must, during a part of this work, face a strong stream running against them. It is therefore a wonderful effort; but from long habit they are able to effect what to most men would appear beyond the powers of the human body. The fish, whether brought by railway or boat, are from widely-separated fisheries. The cod-fish are from Holland, Norway, and the coast of Yarmouth; as also are the turbot, brill, sole, plaice, skate, haddock, and whiting. Mackerel come from Devon and Cornwall; herrings and sprats from various parts of the coast, according to the season, but chiefly from the eastern coasts. Dover is celebrated for its soles, but few of those called by that name are really from that limited locality. Shell-fish do not all come from the same coast, oysters being brought from the Thames and the Channel, lobsters from Norway and the coast of Scotland, crabs from the south coast, and shrimps and prawns from the estuary of the Thames and the south coast of Devonshire. These fish are kept alive in wells made in the vessels which bring them, and those which are

otherwise conveyed are kept fresh by means of ice, vast quantities of which are thus consumed. In this way the fish sold at Billingsgate are brought to market, and classed as *wet fish*, *shell-fish*, and *dry fish*; the latter being some of the varieties comprised in the first division preserved by curing and drying.

120. The Wet Fish sold in London, besides the salmon, eels, flounders, &c., already alluded to, comprise the following: 1st, *turbot*; 2nd, *soles*; 3rd, *brill*; 4th, *place*; 5th, *codfish*; 6th, *haddock*; 7th, *herrings*; 8th, *mackerel*; 9th, *whiting*; 10th, *sprats*; 11th, *whitebait*; 12th, *mullet*; 13th, *skate*; 14th, *smelts*. Besides these may be enumerated the pilchard, the gurnard, the conger-eel, the halibut, and the ling, which are seldom carried far from the places where they are brought to land, the first being a bad traveller, and the others being scarcely worth the cost of carriage.

Turbot.

121. The Turbot is the best of all our ordinary sea fish, and is taken on the south and east coasts of England in great numbers, and also from Norway and Holland, the last being the most highly valued. It is a broad and flat fish, thick and fleshy, with a gelatinous skin, which is highly esteemed by the epicure. In weight this fish varies from 5 lb. to 30 lb. The consistence of the flesh should be firm and curdy, without being hard or woolly; and it is better kept for a couple of days in a cool place than dressed at once. It is difficult to judge of the quality from a mere inspection, and, without a knowledge of the locality from which the fish comes, as no one, however experienced, can estimate it with any thing like certainty. The Doggerbank fish are the best, next to which rank the Norway and Devonshire, and at the bottom of the list come the Scotch. They are in season all the year round in some one or other of the various fisheries; but the price depends upon the numbers brought to market, a middle-sized fish being sometimes sold retail at 8s. or 10s., and at others as high as two or even three guineas.

Soles.

122. Soles come next to turbot in general estimation as a table delicacy, and they are superior in point of digestibility, being in this respect very well suited to the invalid or dyspeptic patient. In shape and size they are longer in proportion, and altogether smaller than the turbot. They are taken in large numbers on the southern and

eastern coasts, and are brought to market as quickly as possible, as they do not keep long without losing their sweet flavour. Like the turbot, they are in season all the year round. The skin is removed before dressing, being rough and nearly devoid of gelatine, as compared with that of the turbot. The flesh, also, is not so firm, but it is very delicate, and quite as well fitted to afford nourishment. The price of soles is usually about 8d. to 1s. per lb.

Brill.

123. The Brill resembles the turbot still more closely than the sole, being nearly of the same size, but longer in proportion, and with a skin containing much less gelatine. The flesh is not so firm as the turbot, but quite as much so as that of the sole, with the flavour of which it may be compared rather than with that of the turbot. It is sold in London for half the price of turbot of the same weight.

Plaice.

124. The Plaice is a fish of a very watery and poor consistence, and even its skin partakes of the same inferior character. The best are those called Dowen plaice, which are caught in the Channel between Folkstone and Hastings, and are of moderate size, seldom exceeding seven or eight pounds in weight. Dutch plaice are larger and coarser, but few people who can afford to pay for turbot or brill will purchase plaice of any kind. It is frequently sold as low as 3d. per lb.

Flounders.

125. Flounders have been described already under river fish—though they are also taken in the sea. *Dabs* are a smaller species of this genus (*Pleuronectes*), and are only eaten by the very poor.

Cod.

126. The Cod, like the sole, is one of the fish best suited to the invalid, being light and digestible, and free from all oily flavour. It is a large fish, often weighing from twenty to thirty pounds, though on the average not being near the lower of those weights. The head is large and unsightly, and the body is by no means elegant, being devoid of that series of curved lines which gratify the eye in the salmon. There are two chief varieties sold in England, the Doggerbank and the Scotch cod, the former having a sharp nose, with the body dark brown; while the latter has a blunt round nose, and the body of

a light yellowish ash-green. It is a deep-sea fish, and is only taken with the hook and line on the edges and sides of the banks which are thrown up in the channels around the various lands in the northern seas, the fish not being found south of lat. 60 deg. They spawn from December to March, during which time, and for some months before, they are in high condition; but from April to the end of the summer, few cod-fish are to be met with in a state fit for the table, though some are still caught which have recovered themselves after a very early spawning. The flesh of this fish, when in season, is firm and curdy, easily separated into flakes, and very light on the stomach. The cod, like the salmon, is often crimped, which process also acts in the same way upon it. The liver is eaten with the fish, and by many people is considered a great dainty; as also is the sound, which lies along the inside of the back-bone, and is the swimming bladder of the fish. The cod is brought from the fishing banks, as near to the market as possible, in the wells of the fishing-boats, which are made expressly for this purpose. As, however, the fresh water is fatal to them, they cannot be brought up the river to London, and the cod are therefore taken out and killed, at which time the crimping is also done, and they are then taken on to Billingsgate by rowing wherries. The price of cod-fish averages by retail about 8d. per lb., but a large fish of 15 lb. may often be bought at Billingsgate for from 2s. 6d. to 5s.

Haddock.

127. The Haddock is a smaller fish than the cod, which it resembles a good deal in every other respect; the flesh, however, is more watery, and the flavour is inferior to it. The average size is not more than two or three pounds, but sometimes they reach a much greater weight. This fish is extensively cured and dried, which will appear under the head of "Dried Fish." Haddocks are generally sold at per fish, averaging about 1s. to 1s. 6d. a-piece; they are therefore a cheap dish, and may be considered a very economical and wholesome article for general use.

Herring.

128. The Herring is met with in countless shoals in all the northern seas, reaching as far south as the north of France. They were formerly supposed to be a migratory fish, but naturalists have now come to the conclusion that the herring only returns to the deeper parts of the sea when the temperature of the shallows is too low for its sen-

sations, and for the procuring of its food, and that it is never very far from the spot where it was spawned and reared. A great deal, however, of the supposed natural history of the herring, as well as other sea fish, is hypothetical, as it is utterly impossible to follow them into the deep and hidden recesses of the ocean. The fish is about eleven inches in length, of elegant shape, and rich in flavour for the table, but rather soft in texture, devoid of curd, and largely imbued with oily matter; so that it is not well calculated for a delicate stomach, though to a sound digestion it is wholesome and satisfying to the appetite. Fresh herrings carry badly, being soon liable to decomposition, and also so soft that they easily bruise; indeed, it is rare to see any herring without effused blood in the shape of a bruise about the head or body. For the London market herrings are taken in the Channel near the mouth of the Thames; they are now also brought up by railway from Yarmouth and Lowestoft. The price varies much according to the supply, as they will not keep from day to day; but, on the average, they may be said to be sold by retail at about a halfpenny a-piece, so as to form a very cheap article of diet, and as such they are largely consumed by the poor, especially in London and other large towns within reach of the sea. They are also used in large quantities when dried; but this trade will be further described under the fifth sub-section.

Mackerel.

129. Mackerel are very superior to the herring when eaten fresh, but they are not capable of being dried or otherwise preserved, so that they are not so generally eaten by the poor as that fish, nor are they ever so cheap. This fish is one of the most beautiful of its tribe, being graceful in its outlines, and in colour of the most brilliant green on its back and sides, arranged in bars of two different shades; the belly, also, is of the most beautiful silvery white, so that with these elements of beauty, added to an elegant forked tail, it strikes the eye as a pretty object of natural history, independently of its value for food. It is a size larger than the herring, and considerably stouter, with a smooth and firm look which is very peculiar; indeed, the fish looks more like a painted piece of marble or glass, than an animal substance. Mackerel make their appearance on our coasts in large shoals in the spring; showing themselves first in March towards the south of the island, and gradually appearing further north, so that on the coast of Scotland they are never seen till July or August. The reason for this is no doubt the lower temperature of the sea in those regions, which does

not tempt the fish from their warmer recesses till a later period of the year, when the sun has had time to effect a change in the water of the sea. They are very voracious, and live upon the fry of other fish. The season, as already remarked, lasts from March till September or October, when, or soon after which time, the cold drives the fish into deep water. They spawn early in the summer months; and after that time till quite late in the season, when they recover their plumpness and condition, they are not nearly so good as earlier in the year, being not only less plump and firm, but devoid of that peculiar flavour which is so much admired by those who like this fish. Mackerel are taken with the net, and require, like the herring, to be eaten as soon as possible after their capture, so that the dealers are allowed to sell them on the Sunday as a perishable article. The *horse-mackerel* is a different species, and though eaten by the very poor, yet it is coarse and not to be compared with the common mackerel. These last are sold at prices varying according to the supply, but on the average at about 3d. or 4d. a-piece. The flesh is firm yet not hard, and it has a flavour peculiar to itself, which forbids its use by those who have a delicate stomach, nor is it in other respects so digestible as the cod, the whiting, and the sole.

Whiting.

130. The Whiting is more nearly the size and shape of the herring than the fish last described, but they are paler and more silvery in colour, and the flesh is devoid of that oily matter so remarkable in the herring and pilchard. It is extremely digestible, and fit for invalids and dyspeptics, the flesh being tender yet not watery, delicate in flavour, and of a pearly white. Whiting make their appearance in the seas of Great Britain early in the spring in large shoals, and deposit their spawn near the shore. They are taken by the hook in large numbers, being very greedy and easily caught. Their length is about twelve inches on the average, and the weight between a pound and a pound and a half, sometimes even nearly double that weight. The season does not last long after they first make their visit to the coast, as they are very poor after spawning, which they do not recover till just before they betake themselves back again to the depths of the sea. In London whiting fetch a good price, being always in demand for the invalid as well as the ordinary dinner-table. The price on the average is about sixpence a-piece.

Sprats.

131. Sprats are very like small herrings in appearance and flavour. In size they are seldom more than four or five inches long, but they are so soft in their bones that many people eat them without paying attention to these troublesome appendages to the ordinary small fish. They make their appearance at the time when mackerel and herrings are no longer to be met with, that is to say, in November, and remain in our estuaries and on the coasts all through the winter, leaving us early in March. During this time they are caught by the net in enormous quantities, so as frequently to be sold for manure, at sixpence per bushel, for want of the means of carriage to a market. Being a very palatable fish, and full of a mild oily matter, they are highly valued by the poor as a relish for their food; and they are readily bought by them, frequently at twopence or three-halfpence a pound in London, and at nominal prices near the coast where they are taken. They are too oily for the delicate stomach, but when fried they are well worthy the attention of those who like any of this kind of fish, and by some people, including myself, they are considered to be even superior to whitebait.

Whitebait.

132. Whitebait are considered by Mr. Yarrell to be a distinct species of fish, and not the fry of other fish, as was formerly supposed. They are peculiar to the Thames, and are taken with a fine net for the purpose, from Blackwall downwards. In size they are about a quarter of that of the sprat, and are more delicate in appearance and flavour, for though still oily, the character of the oil is more mild. They are considered a great dainty, and form the chief attraction to the visitors of Blackwall and Greenwich, so much so as to constitute the staple of the Ministerial dinner, at the close of each session of Parliament, which is annually held at Greenwich. They are only met with in July and the early part of the month of August, and they are sold at a high price, sometimes reaching several shillings per lb.

Mullet.

133. Mullet are of two kinds, the *grey* and the *red*. The former is found on the southern, and especially the south-eastern coast, where it frequents the mouths and lower parts of the rivers which empty

themselves into the sea. It is about the size of the haddock, but with a somewhat larger head, and the colour nearly the same, but paler. The flesh is firm and well-favoured, but not equal to the *red mullet*, which is also found on the south coasts, but is more common on the south-western shores. Its colour differs from the grey variety in being a beautiful rose-colour, with dashes of pale olive on the back, while the belly is silvery, but still with a slight tinge of red. It is found very plentifully on the coast of Cornwall and Devon, but does not frequent the northern parts of the island. The flesh is firm and of good flavour, and fetches a high price in London when in high season, as in May and June, though it is taken and brought to market during the whole year. In size it is not quite so large as the grey mullet, seldom being more than fifteen inches in length.

Skate.

134. Skate, as brought to market, would disgust people who are easily prejudiced against their food by its appearance before dressing, being a most uncouth and formidable-looking fish. It is one of the cartilaginous division, and also a flat-fish, but it is much the largest of that tribe known on our coasts, being generally half a hundredweight, and sometimes as much as two hundredweight. The flesh is thick, white, and firm, easily digested, and very nutritious. Its flavour is peculiar, but agreeable to most palates; and the liver is sold and eaten with it by those who like that part, being similar in flavour to that of the cod-fish, yet more oily, and slightly bitter. Skate is usually sold in slices cut from the fish, which is too large and unsightly to be boiled whole or in halves. These slices are known as crimped skate, though cut off the fish long after it is dead; and I am not aware that skate is ever crimped on the same principle as the cod and salmon. It keeps fresh for a considerable time, and should not be eaten, except in very hot weather, until the second day after it is taken; and even in the height of summer it may be kept sweet in salt and water, by which the flavour is improved, and the peculiar rank smack, which is objected to by many people, is removed. Skate are taken in great numbers on the whole of our coasts, where they are known as true skates, rays, maids, and thornbacks, the last having spines on their backs, and being not nearly equal in flavour to the true skate, though sometimes sold as such. The skate is in season from June to January, and is sold at prices varying from fourpence to eightpence per pound, after

crimping and removing the coarser parts and skin, so that it is a very cheap and wholesome dish.

Halibut.

135. The Halibut is a very coarse and large flat fish, sometimes weighing 300 pounds. The colour above is of an obscure green, bordering upon black, the belly being of a pure white. The scales are small, and the skin is devoid of spines, even the fins being blunt at the points of their rays. The eyes are on the right side. It is not very commonly brought to market in this country; but in the United States of America it is highly prized, and is very plentiful there, as well as on the banks of Newfoundland. From its large size it is cut up and sold piecemeal, the head, fins, and flap being considered the most savoury parts. It is in season in March and April.

The Smelt.

136. The Smelt—said to resemble the cucumber in flavour—is much prized for the table; but as there are several varieties of this fish, epicures are not unnaturally divided as to its qualities. It is in all cases a very delicate-looking, silvery, and elegant fish, being semi-transparent in its structure, and covered with beautiful scales, which are easily rubbed off. The smaller kinds are most valued, such as the Dutch smelts; and those which are caught in St. George's Channel, being larger and less delicate, are considered inferior to the smelts of the east coast. The smelt caught on the south coast is distinguished by Mr. Yarrell as a separate species, being the *Atherine* or *sand smelt*, and deficient in flavour. Smelts are sent to market carefully packed in small baskets on account of their fragility, and they are sold from one shilling per dozen upwards.

Pilchard.

137. The Pilchard is only found on the shores of Devon and Cornwall, where the fishery is of great importance, but the produce is not used to any great extent in this country, the herring being preferred to it. They swarm on these coasts during the autumn, and give occupation to a great number of persons in their capture and cure. They are eaten there dressed fresh like herrings, but are not brought inland, as they do not bear carriage without serious injury. The bulk of the pilchards taken are cured and exported.

John Dory.

138. The John Dory is a rare fish, of a small size and flat form, found on the Cornish and Devonshire coast, and brought thence to London with great expedition and care, as it is highly valued there, and sold at a price higher even than the turbot.

Gurnard.

139. The Gurnard, Red and Grey, and the Piper, are peculiar to our coasts, the first being found on them universally, and the two last chiefly on those of Devonshire and Cornwall. Their heads are large and unsightly, being defended with spines and plates of armour. The flesh is firm and well-flavoured, especially when split and dried for twenty-four hours; as is the custom in Devonshire.

Conger Eel.

140. The Conger Eel is a large species of eel frequenting our seas, and sometimes as thick as a man's leg. They are occasionally brought to Billingsgate market, and sold at a very low price to the lower orders of retail fish-sellers, who vend them in slices, and frequently pass them off as cod-fish, to which they bear some resemblance.

Ling and Hake.

141. Ling and Hake are also taken in considerable numbers in our seas, and sometimes used by the inhabitants of our coasts; but they are not brought inland, nor are they considered as desirable articles of food. Nevertheless, they are both superior to haddock, and probably to plaice, in flavour and digestibility, as well as nutritious qualities. Why, therefore, these articles of food are so entirely neglected I am at a loss to know.

Sect. 5.—Shell-fish.

142. This division of the fish-tribe is highly prized by the lovers of suppers and luncheons, and by those who depend upon their lobster or shrimp sauce for bringing out the flavour of their turbot. The trade was formerly dependent upon the state of the wind, but in these days of screw-steamers and railways, oysters, lobsters, &c., are brought to market as regularly as vegetables to Covent-garden. All shell-fish are very liable to decomposition, and when this takes place they are very

injurious to the health, frequently producing severe bilious derange ment, and in some cases a tremendous eruption, similar to nettle-rash. They are however, when quite fresh, easily digested by sound stomachs, but they are never suited to invalids, with the exception of the oyster, which is light and yet nourishing, and can often be taken by them in preference to any other kind of animal food. The list of shell-fish comprises—1st, *oysters;* 2nd, *lobsters;* 3rd, *crabs;* 4th, *crawfish;* 5th, *prawns* and *shrimps;* 6th, *periwinkles, mussels, whelks,* and *cockles.*

Oysters.

143. Oysters are divided in the trade into *natives* and *common oysters*, the former being properly those which are fattened in the beds at Milton, in Kent, though the Colchester and Milford oysters are generally sold as *natives,* and are scarcely inferior to them. The mid-sea oysters are coarse and large, and cannot for a moment be compared with the natives in flavour, even if they are fattened and brought to market in high condition. At various places, as the oyster-beds near Swansea, they grow to a large size, and the oyster itself, when removed from the shell, weighs a couple of ounces, or more. Oysters spawn in May, the produce being called the *spat,* which is a viscid matter, found in great abundance adhering to the rough projections, &c., at the bottom of the sea. The oyster itself consists of a soft body, with an apparatus for digestion, respiration, and reproduction; and it is contained within two flat shells, which it has the power of closing by its powerful muscle, the opening being effected by the elastic material at the hinge. Hence, whenever the shells are closed we may be certain that the oyster is alive, because as soon as death takes place the muscle relaxes, and the elastic matter at the hinge has full power to act in opening the hinge. The shells are composed of carbonate of lime united by gelatine. The spat is collected by the fishermen, who throw it into still-water in creeks or arms of the sea, in order to preserve the young oysters for future use. Here they remain till two years old, more or less, according to their growth, when they are taken up and brought to market. The oyster season lasts throughout the winter from the month of September till May; and it is usually said that oysters are in season in every month which has the letter R in its name, though this rule does not strictly apply, since they are generally sold in the latter end of August. Oysters are fattened with a variety of substances, oatmeal being the one which is *publicly* used, though many not quite so captivating to a squeamish taste are really employed.

Oysters are sold by the peck at Billingsgate, where the price varies from 2s. to 6s. per peck. They are generally retailed at 6d. a score of common oysters, and 1s. for the same number of natives, or 5s. a barrel of 120 natives.

Lobsters.

144. Lobsters are more influenced by the recent improvements in the quickness and mode of carriage than most other fish. Screw-steamers are now employed to bring them from Norway, and there is one salesman who is said to receive from fifteen to twenty thousand in a single morning. Some of these are at once sent to the boiling-houses near the market, where huge caldrons are kept for the purpose, and where they are dressed at a small charge per score; the remainder are kept alive, and are sold to the various fishmongers, who boil them on their own premises, and are thus able to exhibit them to their customers in a half-dead state, for though able to move their claws, they can hardly be said to be alive. Besides Norway, they are also taken on the rocky coasts of England and Scotland. These fish change their shells every year, and during the time when they are without any covering, or have only a very thin one, they retire to the deepest recesses of the rocks, and are then never taken in the traps which succeed in capturing the well-covered fish. They supply the place of oysters, being plentiful in the summer and not easily procured in the winter season, at which time only the males are in good condition. The quality of lobsters is judged by the weight, which is in proportion to the condition of the fish; those which are out of health being, when dressed, watery and devoid of flavour, and as the water drains away leaving the flesh full of holes, or cellular, the actual weight is diminished in proportion, and the loss may readily be detected. The female lobster, generally called the *hen*, is known by the eggs which she carries attached to the under parts of her body; and they being very ornamental, are used to sprinkle over turbot, and also to mix with and improve the appearance of the sauce. If the lobster is stale, the tail hangs limp; while if fresh, it is retained close to the belly, and if drawn down it will spring back again with some force as soon as liberated. The price of lobsters is exceedingly fluctuating, the average being perhaps 2s. 6d. for a moderate-sized one.

Crabs.

145. Crabs, like lobsters, are taken in traps, and are found in simi-

lar localities, though not always exactly in the same spots. They are not so highly valued, either to be eaten alone or for making sauce, although a crab of moderate size contains a much larger proportion of edible substance than a corresponding lobster, and by many considered superior in flavour. Crabs are in season, like lobsters, from May to September.

Crawfish.

146. Crawfish are very similar to the lobster in all respects, but are inferior in quality and in general estimation. They are in season all the year round.

Prawns.

147. Prawns and Shrimps are lobsters in miniature, and they are taken in the same way on all our sandy coasts. Prawns are larger, but not of such fine flavour as the shrimp when quite fresh. Both soon lose their delicious and peculiar taste by carriage and the necessary delay, which occasions more or less decomposition.

Mussels and Cockles.

148. Mussels and Cockles are used for sauce instead of oysters, being very much cheaper and not *very* inferior in flavour, especially the latter. Mussels are sometimes poisonous, and should at all times be eaten with care, and as they are very apt to disagree with the stomach. *Periwinkles* are only eaten as a relish by the lower class, who are fond of them, as well as of the similar univalves called *whelks*.

The Turtle.

149, The Turtle may perhaps be comprised under this head, though it is properly a reptile. Few private families, however, go to market for them, but buy what they want from the pastry-cook or the tavern-keeper. The preserved turtle, already alluded to at page 35, is by far the best article either for the invalid or for the ordinary purposes of the table.

The Frog.

150. The Frog is not eaten in this country, though in France it is considered a great delicacy. The species is a different one to our common frog, being the *Rana esculenta* of Linnæus. The hind-quarters only are eaten, and the flavour is really very good.

Sect. 6.—Dry Fish.

151. This title comprehends not only the really dry fish, but also pickled salmon and herrings, and salt-fish, known by that name, which are sold for use during Lent, and on the fast-days of the Catholic church. Salmon, haddock, herrings, and sprats are also sold dry, being salted and smoked, or *rubbed over with pyroligneous acid*, which answers the same purpose at less cost. Salmon, dried and smoked, is called *kippered*, for which purpose the spent fish or *kelts* are often, and I am afraid generally, used. Preserved herrings are either *red herrings* or *bloaters*, the former being very salt and highly-dried and smoked, so as to keep for a long time, whilst the bloaters have very little salt or smoking, and are only calculated to keep a very short time, as a fortnight, on the outside, in warm weather. These fish are not adulterated, being really the article which they pretend to be, though the quality varies greatly, especially in the case of salmon. *Salt fish* consists of cod, prepared chiefly in Newfoundland, some being dry, and others pickled by being placed in barrels with a liberal supply of salt. Both of these require soaking in water before use; but this is generally done by the fishmonger, who sends home the fish ready for dressing.

152. In Point of Economy, salt-fish, red herrings, and bloaters are as cheap as most kinds of animal food—that is when used as a relish, and not to be depended on as the substantial foundation for a meal. Bloaters and kippered haddock are now extensively employed by the labouring classes for this purpose, being bought at a low price—that is, at the rate of two for a penny of the former, when very plentiful, and twopence apiece for the latter. As they contain very little salt, they do not promote thirst, which is the great objection to the red herring.

CHAPTER VII.—LARD AND DRIPPING.

153. Lard consists of the fat of the pig, melted down, and in that way separated from the cellular membrane in which it is contained. This melting is usually called "rending," and is sometimes done soon after the pig is killed, and at other times at a considerable interval, the fat being in the mean time preserved in salt. In England, lard is chiefly made from the kidney-fat, which is the most pure and free from mucilaginous fluid; but a great deal of the foreign lard is melted down

from the fat of the surface, mixed with that surrounding the kidneys, and from this circumstance is much softer than the English article. In melting lard on the large scale, various plans are adopted in order to avoid the danger of burning it, and wherever steam-heat can be introduced without difficulty, it is found to be the most certain mode of effecting this object. When melted, and cooled to near its solidifying point, the lard is at once poured into bladders or barrels, and is consequently either sold as *bladder-lard* or *keg-lard*, the former being of the best quality, and fetching the highest price.

154. LARD is imported from Ireland, America, and Hamburg. When pure it should be *nearly* devoid of taste and smell, though still having enough of each to characterise it as *sui generis;* in colour, it should be of a pure white, not too opaque, and in consistence firm, yet not hard, and it should be perfectly homogeneous. When melted it should not sputter, thus showing the presence of water; and neither before nor after cooling again, should there remain any deposit.

155. EXTENSIVE ADULTERATIONS are practised in lard, by mixing *flour*, *water*, *starch*, *lime*, or *alum* with it, and, in some cases, *carbonate of soda* or *potash*, and *salt*. In addition to these, veal and mutton-fat are also mixed with lard, in order to give the inferior qualities the consistence which good lard ought to have. Water is easily detected, as already shown, by the sputtering made in melting. Flour and starch can only be discovered by the microscope, excepting that on melting lard containing these articles, an opaque body usually is seen floating in it, and generally falling towards the bottom. The saline ingredients mentioned above require chemical tests in order to render them apparent.

156. THE PRICE OF LARD is generally slightly beneath that of salt butter. It is usually sold by the provision-dealer.

DRIPPING.

157. Dripping is generally made at home in sufficient quantities for domestic consumption; but among some classes, where there is little or no roasting going on, this article is not made, and it is therefore eagerly sought for. In London, dripping is sold at the cook shops and eating-houses at from 7d. to 8½d. per. lb., and is bought largely by the small housekeeper, as being more economical than either butter or lard, which cost about one-third more, and for some purposes do not go so far.

CHAPTER VIII.—FLOUR AND BAKERS' BREAD.

158. The various kinds of flour used in ordinary housekeeping consist of *wheat-flour*, *Indian-meal*, *barley-meal*, *oat-meal*, and *pea-meal*. These are bought at the corn-chandler's in London, or in the provinces at more general shops, and wheat-flour there perhaps only of the miller. They are all liable to considerable adulterations, which will be specified, as well as the best modes of detecting them. These, however, will be given under a separate head, the importance of the subject demanding ample space for its elucidation.

Sect. 1.—Wheat-flour.

159. Wheat-flour is obtained in this country from two varieties of wheat, *spring-wheat* and *winter-wheat*, which, again, are either *red* or *white*. Foreign wheat belongs to several other kinds, some of which are of superior quality, while others are only fit to mix in small quantities with the best wheat, or to make flour of very inferior quality. Every kind of flour used in the formation of bread consists of two distinct classes of substance; one *nitrogenised*, consisting of gluten, vegetable fibrin, albumen, caseine, &c., so named after the various similar proteine compounds found in animal substances; the other, *non-nitrogenised*, consisting of starch, sugar, dextrine, or gum, &c., all products peculiar to the vegetable kingdom. Besides which, flour contains certain minerals, as silex, lime, &c.

160. The Gluten is the substance of the most importance in the composition of flour, inasmuch as it contains in its crude state most of the other nitrogenised substances, viz., fibrine, mucine, or caseine, and oil. It is separated by making the flour into a paste, kneading this well in a muslin bag, either under water, or under a stream running over it, and continuing this as long as the water is rendered milky. This washing dissolves the albumen, sugar, gum, and salts, leaving behind the *crude* gluten, consisting of—

Pure gluten	20·0
Vegetable fibrine	72·0
Caseine	4·3
Oil	3·7
	100·0

The greater part of the oil is contained in the bran or husk, but some of it remains with the gluten. In the trade the proportion of this valuable substance is guessed at by making a little of the flour

into a paste, and judging of its tenacity by drawing it out into strings, and as this quality depends upon the gluten, the one is a measure of the other. These substances are used in making flesh or muscle, through the agency of the blood, into the composition of which they first of all enter; and they are found in wheat-flour in larger proportions than in any other description of flour.

161. The Starch, Sugar, and Gum are chiefly useful in forming the fat of the body, and in carrying on the respiratory process, and hence their presence must not be overlooked, though not perhaps of equal importance with the gluten.

162. The Grinding of Wheat is a very important process, and upon its proper and skilful performance the quality of the flour in great measure depends. There is a great art in mixing the wheat, called in the trade "mealing;" and it is found that two or three sorts together make better flour than any one of them would turn out; and hence the object of the miller is to select his samples so as to serve his purpose. Steam is now very generally applied to grinding, by which all uncertainty is overcome, and the miller is not obliged to keep an unnecessary stock on hand in case he should be short of water or wind. After the wheat is mixed, it is carefully winnowed from all dust, and then descends through a hopper to the space between two millstones. These are about four or five feet in diameter, made of a peculiarly hard French stone, joined together by a remarkably strong cement, known only to the makers of the article. The surfaces are rough or grooved, and the lower one being fixed, the upper one revolves rapidly more than a hundred times a minute. The centrifugal force drives the flour from the centre, where it is received as grain, to the circumference, where it falls out into a box for the purpose; and as the upper stone is very slightly concave, there is no difficulty in the broken grain gradually finding its way outwards, and being ground in its passage. The flour descends through a spout into a bin in the story below, after which it requires to be *dressed*—the operation of removing the bran, pollards, &c. The machine for this purpose consists of some kind of sieve, varying in the fineness of its material, through which the fine flour passes, leaving the coarse behind. Thus the first sifting removes the "firsts," the second the "seconds," and the third the "thirds," leaving the bran and pollards to be afterwards separated in the same way. Various contrivances have been invented for grinding and dressing, but the millstone is still found to answer better on the large scale than any steel apparatus, though this will serve well

enough for private use. By directing a blast of cold air upon the stone it is kept cool, and thus a much better flour is produced; and, again, by an exhausting or pumping apparatus, the loose flour dispersed in the air by the blast is collected, and saved from waste.

163. A QUARTER OF WHEAT, WHEN GROUND, produces, according to a table published on the authority of a Dartford miller, by the name of Hard, the following proportions of the various kinds of flour, namely:—

	lbs.
Flour	392
Biscuit, or fine middlings	10
Toppings, or specks	8
Best, or Turkey pollard	15
Fine pollard	18
Bran and coarse pollard	50
Loss by evaporation and waste	11
	504

The pollards are sold for feeding pigs, poultry, &c., and the bran for horses and cattle; leaving the flour only for the use of the baker, who requires three qualities—the "firsts," for his *fine wheaten bread;* the "seconds," for his *household bread;* and the "thirds," for *brown bread;* which, however, is professedly made of wheat undressed. In many cases the baker leaves the "firsts" to the pastrycook, and promotes the "seconds" to its office in making best bread; while the "thirds" are used by him for household bread, and mixed with bran for brown bread.

164. THE FLOUR, when ground, is stored in sacks or barrels, the former being the English method, whilst the latter is that adopted by the Americans. The sack consists of 280 lb., and is divided into five bushels, each being 56 lb., and as the bushel again is divided into four pecks, this last measure weighs 14 lb. The American barrel weighs 196 lb., which is 10 lb. more than two-thirds of the English sack, and yet it never sells at two-thirds of the price of that commodity. Thus, at the present moment, the best English flour is quoted at from 63s. to 65s. per sack, whilst the best American is from 39s. to 41s. per barrel. The reason for this difference is not that American flour is in itself worse than English, for much of it is of very superior quality, but that the bakers do not like the barrel as a means of storing it, and also that in the long voyage the flour is apt to "clod," that is, to collect in a mass so as not to mix readily with the water. Besides these objections, the wood sometimes, it is said, communicates a disagreeable flavour to the flour; but this is a very doubtful fact. In order to meet

the prejudices of the baker, a vast quantity of American and Canadian flour is removed from the barrels into sacks, and in the process the contents of those barrels which are clodded, are broken up by rotation in a cylinder. All the flour imported from New York is branded under careful supervision, the qualities being grouped under four classes. Much, however, of this is more or less damaged by sea water, or by other causes becoming sour, so that the brand alone is not a sufficient test of quality. But any housekeeper, who can rely upon the judgment and honesty of the corn-factor with whom she deals, may depend upon obtaining a barrel of good and sweet American flour, at any time, at a price considerably below that of the corresponding quality of the English make; and this is a very important consideration in large families, where the consumption of flour for bread and other articles almost equals that of all the other necessaries of life put together. In buying flour, the sack is always to be returned, but the barrel becomes the property of the purchaser, although its weight is not included in that specified as the weight of the measure of flour. The finest qualities, both of English and foreign flours, are seldom required for domestic use, the "seconds" being quite good enough for all purposes but the most delicate kinds of pastry. The quantity of bread made, and the various uses to which flour is put, as well as its adulterations, will be found under headings pertaining to each.

Sect. 2.—Indian-corn Meal.

165. The meal from Indian corn, or maize, is also sold in the shops as *polenta;* and the coarsely-bruised grain as *hominy.* The former is capable of being made into nutritive and well-flavoured bread, either alone or mixed with other meals, whilst the latter serves, after long boiling, to make puddings, and for the feeding of poultry. Maize is now extensively used in many of our public charitable institutions, and is found to answer every purpose at a much lower price than wheat-flour.

166. Indian-meal, or Polenta, resembles wheat-flour more nearly than any other farinaceous article in its composition, containing, however, less gluten, but it has more oil, and therefore is more fattening, but less capable of supporting great muscular waste, as in working men. In taste, it is somewhat peculiar, being very sweet, and, to a person unaccustomed to its use, somewhat sickly.

167. The Price of Indian-meal flour varies a good deal, but it may generally be purchased at less than two-thirds of that of the wheat-

flour known as "seconds," and at half the price of "best" flour. Maize is now selling at 4s. per bushel, while white wheat is worth from 9s. to 10s., and red from 8s. 6d. to 9s. 6d.; but as the proportion of husk to flour is greater in maize than in wheat, the relation in price is not quite the same between the respective meals.

Sect. 3.—Barley-meal.

168. As with wheat-flour, so with barley-meal, it is the produce of several varieties of the grain known as barley; but a vast proportion of that brought to market is the produce of the two-eared barley. The grains of these in their natural state as *barley* constitute the material for making malt, and also for feeding poultry, while the meal is used for fattening pigs and poultry, and for feeding dogs, &c. When denuded of the husk, it is called *Scotch barley;* and when the ends are still further rounded off it becomes *pearl-barley.* When carefully ground and freed from husks, it is the *patent barley* of the shops; and when ground with less care, *barley-meal.*

169. Barley-meal is composed of less azotised ingredients than either wheat-flour or Indian-meal; it is particularly deficient in crude gluten, and consequently it may nearly all be washed away, when a paste composed of it, mixed with water, is submitted to a current of the latter fluid. The starch, however, is very similar to wheat-starch; but in the action of boiling water upon the two flours there is a great difference; for after long boiling of barley-flour a portion remains undissolved, called *hordeine*, whilst wheat-flour treated in the same way is entirely taken up by the water, or at least practically so, the remnant being scarcely appreciable by our ordinary senses.

170. Barley-meal generally bears the same money value as Indian-meal, or about two-thirds the price of "seconds" wheat-meal. It is very fattening, but not so capable of imparting muscle as wheat-meal or Indian-flour. At the present time barley for grinding sells at 4s. 6d. to 4s. 9d. per bushel, and barley-meal at about 6s. to 6s. 3d. per bushel.

Sect. 4.—Oatmeal.

171. Oatmeal is produced from the oat of this country, of which several varieties are grown. The nature of the soil and climate, however, influences the quality more than the plant itself; and of all soils and climates none come up to those of Scotland for producing this meal in high perfection. Oats are sold as such for feeding horses, or,

when intended for human food, they are deprived of their rough husks, and left in a state called *groats;* or, again, ground in various degrees of fineness, called *coarse oatmeal,* or *fine oatmeal.* The former state is the more common in Scotland, and the latter in England.

172. Oatmeal is highly prized as an article of food, and is said to be even better suited for the nourishment of laborious working-men than even wheat-flour. There is no doubt that for horses, and probably for dogs, it is much better adapted; but with regard to the human race it becomes a question only to be settled by a long trial on certain individuals who have had time to become accustomed to the use of each. In Scotland, oatmeal is the chief food of the labouring population, and they certainly are as able and willing to work as the English; but I much doubt whether the latter could be made to thrive to the same extent upon it as their northern brethren. *Oats* are composed of a larger proportion of protein compounds than even wheat, and they are richer in oily matter than any thing but Indian-corn. They are, however, deficient in starch and sugar, and consequently are not well adapted for making malt, though they *may be* used for that purpose.

173. The Price of Oatmeal is generally high in proportion to that of oats, which arises from the great waste occasioned in the grinding, the husk being thicker than in other grain. A bushel of oats is generally expected to weigh from 39 lb. to 41 lb., whereas it only produces 22 lb. to 24 lb. of meal, or very little more than half. Wheat, on the other hand, loses little more than one-fifth of its weight, and maize and barley between a fourth and a fifth. Hence, it is usual to sell oatmeal by the hundred-weight, or ton, without any reference to measures of bulk. Oats are now selling at 24s. to 28s. per quarter, or about one-third the price of best white wheat. Oatmeal, however, is worth £13 to £14, 10s. the ton.; while wheat-flour for the same amount (being eight sacks) is worth only £25, 4s., not even double the price of oatmeal. But, on calculation, it is found that it takes twelve bushels of oats to make 280 lb. of meal, while somewhat less than six bushels of wheat will turn out the same quantity of flour.

174. In Buying Oatmeal there is little opportunity of judging of its quality, except as to sweetness, by any other test than that of boiling it; for it will be found that samples apparently alike when boiled will form very different articles of food. I have found that some Scoteh meal will turn out nearly twice as much thick "stirabout" as English meal of apparently as good a quality, and hence this test should always

be adopted when practicable; though it does not follow, that because it absorbs more water, the result is therefore more nutritive. At the same time, however, it is more *satisfying*, and that to a family of poor half-starving children is of the greatest consequence.

Sect. 5.—Pea-meal and Bean-flour.

175. Pea-meal, obtained from grinding white peas, is used in cookery for pea-soup and peas-pudding. It is very full of nitrogenous compounds, and highly stimulating and nutritive, though somewhat given to produce indigestion, accompanied by flatulence and constipation. When mixed with wheat-flour in small quantities to form bread, it does no great harm; but its price is seldom low enough to make it worth while to adopt this mode of adulteration.

176. Bean-flour, the result of grinding and dressing horse-beans, is very similar in its qualities to pea-meal; but it is not used for domestic purposes. It is solely mentioned here on account of its supposed frequent adoption by the miller or baker; its price, which is often below that of wheat-flour, tempting them to the fraud; but, according to Dr. Hassall's investigations, it is not one which is adopted in London to any extent. At present, beans and peas fit for flour-making are worth about 6s. per bushel, and turn out even a larger quantity of flour than wheat, so that the saving would be about 2s. 6d. per bushel over the lowest price of English red wheat.

Sect. 6.—The Adulterations of Flour, and the Modes of Detecting them.

177. On the subject of the adulteration of flour, by which is here to be understood that used in making bread, there are various opinions held by those who have examined into the subject. Thus, while Dr. Hassall maintains that very little fraud is practised in London in this important article of diet, Drs. Normandy, Pereira, and Ure, are of opinion that several substances are introduced, more or less prejudicial to health. But as the means used by Dr. Hassall are more reliable than those adopted by the latter-mentioned trio (he having added the microscope to the chemical tests), we may hope that they have been led into error by the activity of their imaginations. Dr. Hassall, however, admits that he did not test the samples of flour for alum: and I believe there is little doubt that it is used by the bakers to a great

extent, and that, in order to please them, the millers are led to introduce it into their flour before sending it out, so as to save the bakers from the trouble of mixing them carefully together. Dr. Pereira says, that "wheat flour is subject to adulteration with various vegetable and mineral substances." Mitchell, who has written at great length on the subject, says, that the following substances are employed in the adulteration of flour, namely, "potato-starch (much employed in France), bran, pea and rye-flour, chalk, burnt bones, powdered flints, and plaster of Paris." Dr. Normandy remarks, that "the substances principally employed for the purpose of adulterating wheat-flour, are potato-starch, bran-flour, Indian-corn-flour, rye and rice-flour, which alimentary substances are objectionable only when the flour containing them is sold as genuine wheat-flour; but, besides these so far venial additions, flour is sometimes sophisticated by alum, chalk, bone-dust, and plaster of Paris, and it is more especially against these that the rigour of the law should be enforced."

178. POTATO-FLOUR IS DETECTED chiefly by means of the microscope, which, however, should be used by a person well skilled in its manipulation. Dr. Hassall gives a beautiful sketch of each of the various kinds of flour, by which the observer may be enabled at all times to make out the composition of the sample submitted to his microscope, if he is a practised hand in that very interesting branch of modern science. But, besides the microscope, other means are available, as first pointed out by Dr. Ure and Gay Lussac. One of these depends upon the greater lightness of potato-flour, so that a vessel which holds exactly a pound of genuine wheat-flour will contain a pound and a half of potato-flour; and in this way, by ascertaining how much of the real article a given vessel will hold, an estimate may be formed of the adulteration of a suspected sample. Thus, if the vessel calculated to hold a pound of wheat-flour holds three quarters of a pound only of the meal to be tested, the flour is all or nearly all potato-starch; and if fourteen ounces, more or less, then the adition or adulteration will still be very considerable. The proportion of gluten contained in the flour, as shown by the adhesiveness of the paste, is also a very good practical test, as potato-starch contains only a very small proportion of that material. Gay Lussac's method, by which a small portion of the suspected flour is rubbed down with fine sand in water, and then treated with iodine, appears to be a troublesome and fallacious one, requiring considerable practice to detect the variation of colour, and therefore not even so well suited to the common observer as the

microscope, which is more easily mastered by the same amount of observation and practice.

179. The Adulteration by Indian-meal can only be detected by the microscope, for the details of which process I must again refer the observer to Dr. Hassall's very interesting and trustworthy papers, originally published in the *Lancet*, and since then in a separate volume.

180. Bean and Pea-meal are also easily detected by the microscope, but their presence may also be discovered by pouring boiling water over a small quantity of the flour, when the peculiar smell of each will be evolved. This method, however, requires a discriminating nose; but I know that it is successful where the adulteration is practised to any great extent, and the person making the experiment is accustomed to this kind of investigation.

181. Oat and Barley-meal and Rice Flour are incapable of being detected except by the microscope, and also to some extent by the gluten-test.

182. The Minerals used in adulteration may be detected by chemical tests, though they are also said to be easily discoverable by the microscope.

183. Chalk will show its presence by the evolution of carbonic acid gas, causing an ebullition, on the addition to flour and water of a few drops of diluted hydrochloric acid.

184. The Presence of Other Inorganic Substances is better ascertained by burning the flour in a crucibile till it is completely converted into a gaseous form, excepting a small part remaining as ashes. In all flour a certain proportion, or about one and a half per cent., consists of silex, lime, &c.; but if more than this remains, it is the result of wilful adulteration, and consists of some of the earths, as bone-earth, plaster of Paris, white clay, or alum.

185. Plaster of Paris may be detected, according to the method given by Mitchell, which is as follows:—"Take a quantity of the flour, act on it in the same way as in the estimation of gluten, and pour the liquid containing the starch (as well as the plaster) into a conical glass. In course of time all will be deposited, leaving a clear liquid, but the plaster being heavier than the starch, will be deposited first. When the deposition is complete, pour off the water and place the glass with the deposited starch and plaster in a warm place. The precipitate will dry, and in a short time fall out of the glass; all the plaster will be found at the point of the cone, which is to be separated

and boiled in a solution of carbonate of soda. During the ebullition the sulphate of lime present will be decomposed, with the formation of an insoluble carbonate of lime, and a soluble sulphate of soda. If the whole be now thrown on a filter, and a solution of chloride of barium added to the filtered solution, a white precipitate of sulphate of barytes will fall (if plaster of Paris is present), which is insoluble in excess of nitric acid. Wash the insoluble residue of carbonate of lime on a filter, and dissolve in a little nitric acid, an effervescence will take place, and lime may be detected in the solution by means of oxalate of ammonia, which will produce a white precipitate, soluble in excess of nitric acid." This test, together with the next, are introduced as samples of the chemical methods of analysis; and it will readily appear that some practical skill is required, so that a novice is not likely to obtain much information.

186. Alum is a sulphate of alumina and potash, and in order to arrive at a complete analysis of it the tests of both substances must be used—that is to say, for sulphuric acid and alumina, but for practical purposes it is enough to obtain a knowledge of the alumina present. Dr. Hassall directs as follows:—"First char 1000 grains of the flour or bread, then boil in a flask with four drachms of nitric acid, four of hydrochloric and four of water; evaporate to dryness; when cold add one ounce of distilled water, and boil for a few minutes; while boiling, dilute with two ounces of liquor potassæ, and boil again for a few minutes; then filter, neutralize with hydrochloric acid, and precipitate with ammonia. The precipitated alumina should be washed, dried, ignited in a platinum dish, and weighed." This process is described plainly enough for scientific persons, but I am afraid is of little use to any others. Alum acts as an astringent, and in large quantities as an irritant, and there can be no doubt that it is prejudicial when used in any appreciable quantity, producing dyspepsia, constipation, and flatulence. Hence, it is very desirable to avoid it, and for this purpose it is that many people take the trouble to make their bread at home; but if they are liable to be imposed upon by the miller as well as the baker, they gain little by the attempt, except, *perhaps*, a saving in point of expense, unless they also grind their wheat, as well as make and bake their bread. Nevertheless, I am inclined to believe, that by going to a respectable tradesman, good wholesome flour may in most cases be obtained, and that when adulteration by alum takes place it is chiefly to meet the views of the baker.

187. The object in using plaster of Paris, or chalk, is the substitution of a cheap material for a dear one, fine plaster costing about 6s. 6d. per cwt., and chalk a mere nominal price. They are, however, so easily detected, that it does not appear that they are used in this country to any extent.

188. Oatmeal, in consequence of its high price, is largely adulterated both with Indian-meal and barley-meal, which can only be detected by the microscope; or they may be roughly guessed at by boiling, which makes a complete jelly of the oatmeal, but has not the same effect upon the other meals. Although oats are much cheaper per bushel than barley or maize, yet the meal is much dearer (see par. 173); consequently there is a great temptation to this fraud, which appears to be extensively carried on in the contracts for supplying workhouses, &c. It is no uncommon thing to find contractors delivering a meal, professing to be oatmeal, at a much lower rate than the wholesale price of the pure article; and, when this is the case, we may always know that there is an admixture of some inferior meal, as, of course, they will not do business at a loss to themselves. The great object in these cases is to give the patients a diet of a very cooling yet nourishing kind, for which purposes the oat is well calculated, while the substitutes are more heating, and therefore the adulteration is injurious as well as deceptive.

Sect. 7.—Bakers' Bread.

189. A great variety of articles are sold by bakers as bread, which may be enumerated as—1st, *best wheaten bread;* 2nd, *household bread;* 3rd, *brown bread;* 4th, *fancy bread;* 5th, *unfermented bread;* 6th, *plain biscuits;* 7th, *fancy biscuits.*

190. The Materials of which these breads are composed consist of the flour described in the last section, together with other substances, as water, salt, milk, butter, sugar, &c.; and, in addition, one or other of two substances, in order to develop carbonic acid gas within the bread, and thus produce a degree of sponginess or lightness, which is not only agreeable to the palate, but also aids the digestion within the stomach, by admitting the gastric juice and other solvents, as the saliva, &c., to the interior of the bread. These consist of—1st, *yeast,* either common, German, or patent; and 2nd, the use of *carbonate of ammonia,* or *carbonate of soda,* and *tartaric acid,* or *carbonate of soda* and *hydrochloric acid,* which last mixture is most commonly used—the acid, seizing on the soda, gives off carbonic acid gas, and the new combina-

tion remains in the bread in the form of common salt. This last is an ingredient in all bread; and therefore it is supposed, that if two articles are employed which leave nothing behind but salt and carbonic acid, there can be no harm done; whilst, at the same time, a considerable saving is effected by avoiding the fermentation of the bread, and consequent conversion of part of it into carbonic acid gas and alcohol. The advantages and disadvantages of these plans will, however, be best considered under the head of Bread-making, as a species of home manufacture, inasmuch as there is little doubt that the bakers cannot, or will not, adopt the use of soda and acid to any extent, and therefore the public have not the choice of the two kinds of bread in most cases. Sometimes, however, a baker offers "unfermented bread" to his customers, and in such a case it is well to know that nothing can be gained by it in point of digestibility, because it is well known that the use of yeast is quite free from all objection on the score of health, and that the only reason for employing the soda and acid is, that they are always available, and that a greater weight of bread may be produced by their aid than with that of barm; but as the cost of the former is somewhat greater than that of the latter, in point of economy there is really no gain, and, in point of trouble, the advantage is slightly in favour of the yeast.

191. YEAST consists of a number of fungi, called the yeast-plant, floating in the liquor in which they are developed. These fungi are in the shape of minute oval or circular bodies, or sporules, which, under circumstances adapted to their development, grow and multiply themselves to an incredible extent, in a very short period of time. They are easily destroyed by heat, cold, or mechanical injury, or by chemical agents. In dried yeast, great care is required in handling it for the purpose of making it into parcels, or it will be rendered useless by the destruction of its vital principle. Great pains have been taken by different observers to trace the development of the yeast-plant, and Dr. Hassall has been so fortunate as to have made out all its stages, which he describes with great minuteness and, no doubt, most accurately, in his remarkable microscopic investigations. He says that in the *first stage*, or that in which it is generally used, it consists entirely of sporules, which are mostly separate, but sometimes feebly united in twos and threes; they vary in size and form, and nearly all contain nuclei, which are the germs of future sporules. In the *second stage*, in which the plant exists in the form of the root-like threads, known as *thallus*, the change takes

place after the lapse of some days, and only under favourable circumstances, by the sporules becoming elongated; a partition then appears in each, by which two cells are developed out of one, and this extension still continuing, other septa appear, until at length jointed threads, at first simple and undivided, afterwards jointed, are formed, to which the above name is given. In the *third stage*, after a further lapse of time, vertical threads spring up from the thallus, which becomes branched when the plant is fully developed, and at the extremity of each branch a row of rounded corpuscles show themselves, which are about the size of the original sporules, but darker in colour and firmer in texture. The three kinds of yeast used in making bread are called brewers' yeast, patent yeast, and German yeast. *Brewers' yeast* is too well known to need minute description; but when examined by the microscope the minute sporules may readily be seen within it. It is obtained from all kinds of malt-liquor, and is distinguished accordingly, as *ale yeast*, *porter yeast*, and *small-beer yeast*. *German yeast*, sometimes called *dried yeast*, is composed of sporules only, without any liquor or gas. It is in the form of a paste, and is obtained from the fermented liquid by filtration. It is imported into this country in bags of half a hundred-weight each. *Patent yeast* is made from hops, malt, potatoes, &c., expressly for making bread.—*See* Book III.

192. Yeast, when added to Flour, or other substance containing sugar, or starch convertible into that substance, and nitrogenised materials, brings on chemical changes which are known by the term *fermentation*, either alcoholic or vinous. In bread-making the change consists in the conversion of the sugar contained in the flour into alcohol and carbonic acid gas, which in their formation distend the dough, and produce cells within its interior. The starch corpuscles remain entire, but they are altered in form, and hence it is pretty clear that no further change is effected than is sufficient to develop the gas, and that the only objection to the use of yeast consists in the loss of substance. It is held by some that yeast is in itself unwholesome; but there are no facts to support this hypothesis, and the use of unfermented bread does not appear to be at all more wholesome than that of bread made in the ordinary way.

193. The Method of Making Bread adopted by the baker, is much the same as that which will be hereafter described as adapted to the use of private families. The chief difference consists in the modes of adulteration or substitution which are practised by some bakers, consisting chiefly in the employment of boiled potatoes or rice, when

these are so cheap as to offer the temptation, or of alum, which is introduced in order to effect certain improvements in appearance and an increase of weight. By law, every quartern loaf is obliged to be four lb. in weight when sold over the counter, and the constant supervision of the police keeps up the weight pretty accurately; but though the same law fines the baker for delivering to his customers bread under the proper weight, this practice, I have reason to believe, is extensively adopted, and probably they will say to compensate for the trouble of delivery. But in any case the great object is to produce a sufficiently baked loaf of the prescribed weight, and to effect this, provision must be made against the flying off of the water too rapidly for the baker's purpose. This is effected by the alum, which causes the bread to be more white than it otherwise would be, and also to retain its water; but, as a set off, it makes it taste more dry than it really is when it has parted with a certain quantity, such as always takes place in twenty-four hours. Bakers' bread does not really lose weight much more rapidly than home-made bread, but it tastes very much more harsh and dry, and loses that elastic consistency which is peculiar to new bread of the bakers' make, and to bread not more than two or three days old when made at home. Several companies have been started in London with the object of doing away with all adulteration, and of selling wholesome bread at the lowest possible price; but they have invariably failed in a commercial point of view, and have not improved upon the quality either. In Birmingham, Carlisle, and some other towns, the plan seems to answer; but not so in London, which has always been supposed to be much worse off than other places in the impositions of the bakers, who fix what price they like, and are most of them in league together.

194. The Weight of the Quartern Loaf being 4 lb., according to the Act passed in 1836, it should bear some relation in price to the equivalent quantity of flour, yet this is by no means always the case. It is quite true that a sack (or 280 lb.) of flour does not always turn out the same number of loaves; and that after a wet harvest, when the wheat is of a bad quality, the result in loaves is also small, as compared with the weight of flour; still this variation is not sufficient to account for the want of constant uniformity between the prices of the two commodities. There is no element in bread-making, besides the flour, of any consequence in the account, but coals and labour; but even with these corrections the case cannot be substantiated that bread is always regulated in price by the prime cost of its elementary ma-

terials. The average number of 4-lb loaves from a sack of good flour may be taken at 94, and the wages, yeast, and coals at about 4s.; so that to produce this number of loaves the price of a sack of flour must be added to the latter sum, which at the present price for best wheaten bread will be—flour 63s., added to 4s., making in all 67s. for 94 loaves, or, within a very small fraction, 8½d. per loaf, which is 1d. per loaf only under the lowest price of best bread. This profit scarcely is sufficient for the support of the baker, and therefore not to be objected to by the consumer if the article were really made with this kind of flour; but the fact is that, even for best bread, the highest priced flour is not used, and that instead of paying at this time 63s. for this flour, he is buying it at about 56s. for his best bread, and at 48s. or 49s. for his household—giving him nearly threepence a loaf for profit on each. Now I am by no means inclined to think that this is too much, when it is considered that there is the trouble of delivery to be incurred, and that in most cases the baker does not sell bread enough to fix the profit at less than this sum. The average business of a baker is seldom, probably, more than 20 sacks a week, and very often not so much; and as each sack will return him about 14s. profit, he will make a gross profit on his business, after paying for labour, coals, flour, and yeast, of £14 per week, or £728 a-year, from which are to be deducted the house-rent, keep of horse, wages *in delivery*, and *bad debts*, which must always make a considerable item in this business. If, on the other hand, he calculates on the lowest rate, the profit will be £364 per annum, subject to the same deductions; and this, on a smaller amount of business, is certainly not enough to make any man encounter the risk and trouble. Unfortunately, however, the trade, as a body, are not satisfied with these profits; and probably they cannot make them, unless they have capital enough to go to market with ready money, for if they are obliged to take credit with the miller they may not be able to obtain their flour at the above rates. Hence it is that many of them have recourse to the use of rice or potatoes, or both; and it is said that they adopt the following formula, or with some slight variation in its proportions:—Potatoes, of good and floury quality, are first boiled, then mashed with a little water and the addition of a little flour and yeast; this is left for about six hours covered up, which allows of considerable fermentation, and when the baker is satisfied that it is carried far enough, he dilutes the whole with water until it is thin enough to be strained through a sieve, by which he guards against the presence of any lumps of potato in the bread.

The strained mixture is now worked up with flour into the proper consistence to form *the spunge*, which is the name given to the dough as ready for the division into loaves. In the course of the sponge-setting, however, more flour and water are added, as required; and it is at this time that the *alum*, *hards*, or *stuff*, are added—these being the several names for the same thing, and the base in each case being the first-named drug. The proportion of potatoes used varies greatly, but it is sometimes, I believe, nearly one-half of that of the flour, and very frequently one-third. Very often rice and potatoes are used in equal proportions, the compound being mixed with an equivalent in weight of flour; and this is said to make a very good bread, but rapidly becoming dry. When these substances are used, the profit upon each loaf, supposing their price to be relatively low, will be nearly cent. per cent. But it must again be remembered that these adulterations are chiefly practised in low neighbourhoods, where credit must be given, and where, in consequence, a considerable number of bad debts are incurred.

195. From the foregoing calculations it results, that the cost price of a loaf of pure wheaten flour, of good "seconds" quality, when this flour is 56s. per sack, is rather more than 7½d.; and when made of good "thirds" flour, about 6¾d. Hence, supposing the price of the *best* wheaten-flour to be 63s., whenever we find that bread is sold by the bakers at less than the above sums with a fair addition of 1d. or 1½d. per loaf to each, we may conclude that adulterations are practised. At the same time, if we are able to economise by baking at home an article at less cost, we may be pretty sure that it is genuine, and therefore we may consider the saving a real one. By a reference to the published statements of the analyses made by Dr. Hassall, it will be seen, that in every case, alum was detected in London bread, and that even the League Bread Company, who professed to sell "pure unadulterated bread, full weight, best quality, and the lowest possible price," use this prejudicial drug, though, perhaps, not to the same extent as some other bakers. But, besides these adulterations by alum, it appears that in almost every case bread, as delivered to private houses, is deficient in weight, in many cases to the extent of several ounces in the 4-lb. loaf.

196. The Amount of Water taken up by the flour in making it into bread, according to an experiment conducted under Dr. Hassall's supervision, is as follows:—Flour, as used for bread-making, contains about 17 per cent. of water; and of this flour two pounds, when made into bread by the addition of water and German yeast alone, produced

two pounds eight ounces and a half of bread. When two scruples of alum and half an ounce of salt were added, the same quantity of flour became two pounds ten ounces of bread; and when instead of two pounds of wheat flour a pound and a half of the same quality was mixed with half a pound of rice-flour, with the addition of the alum and salt, the whole weight became two pounds ten ounces and a half. Bakers' bread, therefore, may be considered to be composed of one-quarter water, as near as may be—that is to say, supposing they use alum and rice, or potatoe-flour, or even alum alone. But pure bread without alum should be composed only of one-fifth water; and the consequence is, that we pay the price of bread for that quantity of water which is above the fifth of the weight of the bread. Dr. Hassall's experiment being made on the small scale, allowed only one-quarter of water in the loaf, but it is well known that a much greater quantity is really united with the bread when made in large masses, and that instead of obtaining 87½ loaves from the sack of flour, which would agree with his calculation, they really turn out from 90 to 98, or about 94 on the average.

197. The Adulterations in Bread are to be detected in the same way as in flour, already described at page 86.

198. Brown Bread, as sold by the baker, is seldom a genuine article, but is made up by mixing bran or pollard with inferior flour. The consequence is that it soon becomes dry, and has not that sweet nutty flavour which is due to the presence of all the elements of pure wheat. Whenever this article is desired for invalid purposes, its manufacture should be intrusted to some person who can be depended on, or else it should be made at home, according to the plans set forth in the next chapter.

199. French Bread is commonly sold in the shops in the shape of rolls for breakfast purposes, or for use at dinner. It is made with fine flour, milk, and eggs; and after baking, the surface is rasped, by which it is changed in appearance to a delicate pale brown. It is very light and wholesome when well made, and by many people is digested in preference to our English kinds.

200. Biscuits are made without yeast, either with or without the addition of butter and sugar. Those made with flour alone, and the addition of a very small quantity of butter, are called hard or captains' biscuits; while sweet and buttery biscuits are sold as fancy biscuits, and are made in enormous quantities at various wholesale manufacturers', their qualities varying almost as much as the names of their makers.

201. Unfermented Bread is sometimes sold by the bakers as "digestive bread," or by some other name calculated to catch the eye of the dyspeptic patient. The mode of making and the use of this bread will be found at greater length in the next chapter.

202. In Purchasing Bread at the baker's, the chief and only thing to be done is to select as honest a tradesman as can be met with within the near neighbourhood of the house to be supplied. It will be gathered from the foregoing remarks, that as the quality varies greatly, so the price is not the only test; but still it is undoubted, that a high price does not always imply good bread, nor does a moderately low one forbid the production of it. The good manager, therefore, will see that she has as good an article as her neighbourhood will afford at an average price, and will particularly take care that the weight is in accordance with the law—a loss of four ounces makes a difference of a halfpenny in the four-pound loaf, which is generally the variation between the higher and the lower prices; and, therefore, while she fancies she is saving that amount, she may really be doing no such thing.

203. The Law relating to the making of bread is guided by 6 & 7 Wm. IV., c. 37, and its provisions are assimilated to 3 Geo. IV., c. 106, which regulates bakers in the metropolis. Bread may be made of any weight or size, but must be sold by weight only (French rolls and fancy bread excepted). Bakers to use avoirdupois weight, and no other. Penalty for using false weights, five pounds. Bakers delivering bread by cart, &c., to be provided with scales and weights. Bakers convicted of adulterating bread liable to a penalty of ten pounds, and to have their names and abodes advertised in the newspapers. Penalty for adulterating flour, meal, &c., twenty pounds. Bread made of mixed meal and flour is to be marked with the letter "M." Magistrates and peace-officers, by warrant, may search bakers' premises, and seize and carry away adulterated flour and meal; penalty for obstructing search, ten pounds. Ingredients for adulterating flour, meal, &c., found on bakers' premises, subject the offender to a penalty of ten pounds; and the like sum for every subsequent offence. Offences occasioned by the wilful default of journeymen-bakers subject them to fine or imprisonment. Bakers not to bake bread or rolls on Sundays, or sell bread or bake pies, &c., after half-past one o'clock in the afternoon; bakings may be delivered until half-past one o'clock, and not later, on Sundays, under the penalty of twenty shillings.

CHAPTER IX.—GROCERY.

204. The Articles Sold by the Grocer comprise a very miscellaneous list, of which the chief are—*tea*, *coffee*, *cocoa*, and *sugar*; to which, however, must be added, *spices*, *arrowroot*, *tapioca*, *sago*, *semolina*, *semola*, *rice*, *raisins*, *currants*, &c.

Sect 1.—Tea, Coffee, and Cocoa.

205. Tea, as sold in the shops, is the leaf of the tea-tree, dried and stored for use. These leaves are gathered at three or four different seasons, by which in some measure the different qualities of tea are produced, those first picked being most valuable, and the last coarse and large. The young leaves are narrow, convoluted, and downy; the middle-aged have their edges serrated and veined with more or less delicacy; whilst in the older leaves the serration and venation are more marked; and, in addition, some peculiar hoops are developed along the margins, which are readily seen when they are examined. All teas are divisible into black and green, depending partly upon the age of the leaves, partly upon the locality where grown, and partly upon the method of drying. Thus, the black tea is not only roasted in a shallow iron vessel, called a *kuo*, but it is also again submitted to the action of a charcoal-fire, in sieves. Green tea, on the other hand, escapes the second process. Teas are also *rolled* by the hand, when half dry. Black teas are known as *bohea*, *congou*, *souchong*, and *pekoe*; green teas, as *twankay*, *hyson*, *imperial*, and *gunpowder*. These qualities of black and green tea are chiefly dependent upon the age of the leaves when gathered. More varieties are known in the trade, but the above are the leading sections into which this article is divided. Common teas are artificially scented—as, for instance, by the cowslip, which is added to the tea in layers, both being previously dried, and alternately placed in the canister or chest. After some days the cowslips are removed by sifting, and the tea thus scented is mixed with other teas if too highly scented, or with more cowslips if not sufficiently so. This is the process for making cowslip hyson, but black teas are also similarly flavoured, and with them the flower of the cowslip is reduced to a powder and actually mixed with the tea in the last roasting process, and left there. Besides the cowslip, other flowers are used to scent souchong teas, as the *Gardenia florida*, *Olea fragrans*, and *Jasminum sambac*.

206. An Infusion of Black Tea contains, on analysis, *gum*, *saccharine matter*, *tannin* in large quantities, and *theine*, which last is identical with *caffeine*, both being important elements, and containing nitrogen. Green tea almost invariably contains some added matter, in the shape of glazing or colouring, consisting in most cases of *Prussian blue* or *indigo*, *turmeric powder* and *china clay*. Many other matters are occasionally used for the purposes of adulteration, which will be found described under that head. The amounts of gum and tannin contained in any infusion are good tests of its value, but the really useful principle is the theine, which is the cause of the peculiar effects of this important article of diet.

207. Theine, Caffeine, Theobromine, and Piperine, are four vegeto-alkalis, identical in composition, and in their effects upon the human body. They are met with in the four most common articles in domestic use, namely, tea, coffee, cocoa or chocolate, and pepper, and in very few other vegetable substances. In making selection of tea, coffee, cocoa, and pepper, man has instinctively, or rather by experience, chosen those substances which will impart the greatest quantity of nitrogen, conjoined with tannin and other conservative principles. They are soluble in about one hundred parts of cold water, and much more readily in boiling water, or if an acid be present. In order to precipitate theine or caffeine, a decoction of common tea or of raw coffee berries, previously crushed, is mixed with excess of solution of basic acetate of lead. The solution filtered from the copious yellow or greenish precipitate, is treated with sulphuretted hydrogen to remove the lead, filtered, evaporated to a small bulk, and neutralized by ammonia. The caffeine or theine crystallizes out in cooling, and is easily purified by animal charcoal. It forms tufts of delicate white silky needles, which have a bitter taste, melt when heated, with loss of water, and sublime without decomposition.

208. The Adulteration of Black Tea does not appear to be effected to any extent, according to the examinations made by Dr. Hassall. It has been supposed that other leaves are mixed with those of tea, and probably at one time the practice was common, but at present the low price of tea forbids the resort to this expedient in an economical point of view. While inferior black teas can be imported as low as 8½d. per lb., which is the present price, it is not likely that any other leaves will be substituted, unless it could be done in this country, so as to avoid the duty; but as this is almost impossible, owing to the efforts of the excise, it results that no such attempt is made, and that

the foundation of all the teas sold really consists of the leaves of the tea-tree in some shape. At one time exhausted tea-leaves were much used, persons being regularly employed to buy them up from the hotels and other places of large consumption, as much as 2½d. to 3d. per lb. being given for them when dry. They were then mixed with gum and some small quantity of tannin, and re-dried, after which they were faced with rose-pink and black-lead. The same cause, however, which forbids the substitution of spurious leaves also acts against the use of the exhausted leaves, namely, the low price of teas, which will not afford the outlay; for by the time that the exhausted leaves are gummed and tanned, and then faced, the value is brought up to that at which ordinary black tea may be bought; and as they are liable to be seized by the excise, the risk is greater than the profit. Nevertheless, the system is said to be pursued at the present day to some slight extent. Catechu appears to be sometimes added as a substitute for the tannin which is extracted from the exhausted leaves. Rose-pink, logwood, black-lead, and talc, or china clay, are also introduced into teas with a view to alter and improve their colour. Indigo and turmeric-powder are likewise employed in small quantities for black tea, and in very considerable proportions for green tea; and for the adulteration of which, the following materials also are used, chiefly in China, viz.: Prussian-blue, mineral-green, verdigris, arsenite of copper, chromate of potash, chrome-yellow, Dutch-pink, chalk, gypsum, and steatite or soapstone. Some of these are comparatively innocent, as the steatite, Prussian-blue, Dutch-pink, chalk, gypsum, turmeric-powder, black-lead, and china clay; but the chromate of potash, chrome-yellow, arsenite of copper, verdigris, and mineral-green are of a very poisonous nature, being all of them active salts of lead, arsenic, or copper. From the result of Dr. Hassall's analysis, it appears that of thirty-four samples of black tea as imported, all were in a genuine state as regards the leaf itself, but portions were adulterated by facing the surfaces of the leaves "with black lead, an irridescent powder resembling mica, indigo, and turmeric," also by the addition of imitation-tea made out of tea dust, sand, &c. With regard to black tea as retailed, it appears that out of twenty-four samples, twenty were genuine, and four adulterated, though he thinks there was no blame attached to the vendors, they being, in all probability, wholly unaware of the fact of these particular descriptions of tea being adulterated or faced in the manner described. As might be expected, the fabricated teas seized by the excise are shown to be composed of various articles,

other than genuine tea, as exhausted tea-leaves made up with gum, catechu, and facing. British leaves of sloe, sumach, &c., mixed with catechu and tea-dust, are also shown to exist among this kind of fraudulent tea. Lastly, in green tea, Dr. Hassall proves that out of thirty samples of retailed green tea, all were more or less adulterated, some with what is called "lie-tea," others with one or other of the previously mentioned foreign substances. In no case did he find green tea depending for its colour upon natural causes. In consequence of the discovery of these facts, Dr. Hassall recommended a reduction of the duty on all kinds of *black tea*, to the extent of at least one-third, and the continuance of that on *green tea*. Also, that *lie-tea* (which is imported from China, and pays duty as tea), inasmuch as it consists of inferior leaves, mixed with sand, and very often the leaves of other plants, should be prohibited, as well as all teas mixed with it. These recommendations have been in a great measure carried out, and it is believed will shortly be followed to the full extent desired by him. The duty will soon be 1s. per lb., so that black teas of good quality may then most probably be bought at 2s. to 2s. 6d. per lb.

209. The Methods of Detecting the Adulteration of Tea are somewhat intricate, and above the management of all but professed chemists and microscopists. Dr. Hassall goes at great length into this subject, and to his book I must refer my readers for full particulars of the natural and microscopic appearance of the leaves when softened and unrolled, and of the substances contained in the tea, by which the fictitious additions are distinguished from the genuine article. The great safeguard is to avoid green tea altogether, and to use black tea obtained from houses of good reputation. What is really wanted is a good practical test, suited to purchasers, and this can only be obtained by the use of the natural senses applied to an infusion, as practised by the dealers themselves. In buying teas, a good guess may be made by the smelling and inspection of the dry tea; no one, however, depends upon this, but it is usual to make an infusion from equal quantities of each sample, and compare them in all the sensible quantities of colour, taste, and smell. These tests may, in a similar way, be used by the family housekeeper, but she seldom has recourse to them in the grocer's shop, who could scarcely be expected to make a dozen cups of tea for each of his customers, and therefore she is compelled to buy what he recommends, and to postpone a trial of its qualities until she arrives at home, when she can readily compare two equal quantities by infusing them in a small teapot separately, and examining them together. It

is scarcely fair to try one tea to-day and the other to-morrow, as the variation in the state of the stomach will often make a difference which will upset all calculation.

210. In Making Tea for this trial, as well as for general use, the best plan is to warm the pot with the dry tea in it by placing it on the hob, or in the summer time by pouring water into it, and after pouring it out again, adding the tea. When economy is to be consulted, the addition of five grains of carbonate of soda makes the infusion much stronger, but all the strength of the tea is brought out in the first brewing. After the tea, with or without soda, is introduced, boiling water should be poured on it, taking care that the tea is completely covered and not floating at the top, and not quite filling the pot. After ten minutes the pot is to be filled up and the tea poured out, but it should never be completely emptied, until the last cup is to be obtained from it, adding fresh water from time to time in preference. Boiled tea is stale and flat, though not unprofitable, as the decoction may be obtained stronger than the infusion.

211. The Wholesale Price of Tea at the present time is as follows, to which must be added the duty, amounting now to 1s. 9d. per lb., and the retailer's profit of from ten to twenty-five per cent. :—

Wholesale and Retail Prices of Teas.

	Wholesale Price.	Retail Price.
	s. d. s. d.	s. d. s. d.
Congou	0 8½ to 1 5 ...	2 8 to 3 10
Souchong	1 2 „ 2 6 ...	4 2 „ 4 6
Pekoe	1 6 „ 2 6 ...	4 6 „ 5 6
Orange pekoe	1 0 „ 1 6 ...	4 0 „ 4 8
Scented pekoe	1 6 „ 2 8 ...	4 0 „ 5 0
Oolong	0 10 „ 2 0 ...	3 0 „ 4 6
Hyson	1 6 „ 4 0 ...	3 2 „ 5 10
Young Hyson	0 9 „ 1 0 ...	3 0 „ 3 6
Twankay	0 10 „ 2 9 ...	3 0 „ 5 0
Gunpowder (Canton)	0 9 „ 1 6 ...	3 0 „ 4 6
„ (hyson kind)	1 4 „ 4 0 ...	3 2 „ 6 0
Imperial	1 0 „ 3 6 ...	3 0 „ 5 6
Twankay and hyson-skin	0 8 „ 1 2 ...	2 6 „ 3 4

212. Several Substitutes for Tea, or improvers to its strength, are offered to the public under the names of "La Veno Bono," "Chinese Botanical Powder," &c.; but they possess no element likely to be of any service, and as they chiefly contain catechu, they are prejudicial, by causing constipation of the bowels and flatulence, as well as general disorder of the digestive organs.

Coffee.

213. Coffee, used for similar purposes to tea, and containing a similar nitrogenized principle (called in this case *caffeine*, instead of theine), is the berry of the coffee-tree, which grows in America, the East and West Indies, Ceylon, Brazil, and Arabia, as well as some other warm climates. The plant is usually from four to five feet high, and the berries, which are gathered in the autumn, are of a dark red colour. Each tree yields about a pound or two of these berries, which contain within their pulp a pair of seeds enclosed in a thin membrane, and these, after being rubbed, washed, dried, and winnowed, constitute the raw coffee as imported and sold by the grocers when their customers intend to roast it themselves. When it is sold as roasted, or as ground coffee, which implies a previous roasting, these berries are submitted to the action of fire, in a closed chamber, until they are slightly charred, when they are cooled without exposure to the air, and then coarsely ground, and when not wanted for immediate use, they are preserved in tin canisters. As the oily matter contained in the berry is very volatile, it is desirable to avoid keeping either the whole berry or the powder longer than is necessary, and especially the latter, hence the grocer professes to roast and grind daily, and those who are in large business generally do so. The grinding at all events ought not to be more than sufficient for the daily supply; and it is in all cases better for the private customer to buy the berries either raw or roasted and grind them himself, rather than risk not only the loss of aroma by the exposure to the air, but also the adulteration with chicory, which is so generally practised.

214. The Composition of the Coffee Berry is of such a nature that it can readily be discriminated by the microscope from the substances with which it is adulterated, but by ordinary means such is not the case. There are probably tests by which chicory may be detected, but roasted beans or corn, when ground, can scarcely be known from inferior coffee by any mode of examination, except that adopted by Dr. Hassall. Two parts are plainly to be seen in the berry, as in all others of the same class—the substance and the investing skin: and these each present a peculiar appearance under the lens, for which see Dr. Hassall's very beautiful woodcuts. But, besides this, there is one fact which may serve as a guide, and that is, that the texture of the substance of the berry is a long time in becoming soft, whether it is roasted or raw, whilst chicory readily softens and becomes

spongy, so that even in the ground state the two may be distinguished. The reason of this difference lies in the fact, that the berry contains a considerable quantity of essential oil, to which it owes its peculiar smell on roasting, and which prevents its imbibing water and becoming soddened by it, whereas chicory has none of this, and therefore at once submits to the action of this fluid.

215. Adulteration of Coffee by chicory, corn, and other articles, is practised to such an extent, that even after three months' notice of his intention were given by Dr. Hassall, of forty-two samples examined by him, thirty-one were adulterated with chicory; two were mixed with other matters not clearly made out; and of these many of the samples were almost wholly composed of chicory. This was a great improvement upon the result of his first examination, showing that at that time, before notice was given, coffee was much more extensively adulterated, not only with chicory, but with roasted corn, beans, and potato-flour. Canister-coffee seems to be adulterated as much as any, though it has been purchased by the *Lancet* Commissioner of several respectable houses in a state of purity. It appears, therefore, that the only mode by which the purchaser can ensure a good and genuine article, is to purchase his coffee in the berry, and either in the raw or roasted state. An attempt has been made to imitate the shape of the berry by compressing the chicory in a mould, but the fraud is easily detected by any one possessed of eyes and hands, and therefore need not enter into the calculation. If the berry is raw, a roaster must also be bought, but as great care is required in roasting to guard against too great a heat, it is as well to buy the coffee ready roasted, but unground. A mill is very readily worked, and in a very few minutes the day's consumption may be ground, and at once put into the pot. In this way only can the pure article be obtained with certainty, and as it is plain and easy to all, they can have no excuse for its non-adoption.

216. The Presence of Starch-granules in corn, beans, and potatoes, indicates them when under the microscope; and, therefore, when this instrument is available, *and can be properly handled*, coffee containing any of these comparatively innocent ingredients may be detected. But though these are not positively injurious, the venders are fraudulent, because neither corn, nor beans, nor potatoes contain caffeine, which, as I before remarked, is the essential ingredient in coffee, as theine is in tea. Both of these similar principles exert a marked influence on the nervous system, and brace it so that it is

capable of bearing up against fatigues and exposures far better than when stimulated by alcohol. This has now been proved by direct experiment in many cases; and it is an undoubted fact, that tea and coffee are of vast service as general drinks, and that those substitutes for them which are deficient in theine and caffeine are of no more use than toast-and-water.

217. The Wholesale Price of Coffee is now as follows, to which must be added 4d. per lb. duty and the retailer's profit:—

		s.	d.		s.	d.
Jamaica coffee	per cwt.	46	0	to	90	0
East India	,,	48	0	to	70	0
Mocha	,,	68	0	to	90	0
Ceylon	,,	48	0	to	80	0
St. Domingo	,,	47	0	to	49	0
Costa Rica	,,	61	0	to	74	0
Brazil	,,	39	0	to	58	0

The Retail Price is as follows, as sold by the most respectable firms:—

	s.	d.
Good Ceylon coffee	per lb.	1	1
Good plantation	,,	1	2
Finest ditto	,,	1	3
Finest South American (Costa Rica)	,,	1	4
Choice mountain flavoured	,,	1	5
Best old Mocha	,,	1	6

The wholesale price of chicory is about 16s. to 20s. per cwt.

Chicory.

218. Chicory, unlike coffee, corn, or beans, but like the potato, is a root, being that part of the wild endive, a native plant of this country, but supposed to have been originally introduced from India or China. It grows readily in poor sandy soils, and yields about ten or twelve tons per acre in the raw state, which, when dry, will only make about one ton, or somewhat less. The roots are washed, sliced by a machine, and dried, after which they are powdered, and then sold at about 4d. per lb. But chicory itself is subject to adulteration; carrots, mangel-wurzel, and parsnips being employed for the purpose, as well as burnt-sugar, which, however, is only added to give colour, being in fact three times the price. Dr. Hassall describes several other substances as being used for the purpose, but not on his own authority, as far as

regards the most offensive of them, viz., oak-bark tan, mahogany sawdust, baked horses' and bullocks' livers, and Venetian red. It is, however, doubtful whether these are used to any extent in adulterating either coffee or chicory; for while this last article is to be bought at 4d. per lb., one would suppose there would not be much temptation to go lower in the scale of fraud. It must, however, be remembered that the sale of chicory is legal, *if sold as such*, and that it is only when it is sold as coffee, or mixed with it when the article professes to be pure coffee, that a fraud is committed. No one conversant with the subject imagines that chicory is either useful or wholly innocent, but no one either imagines that it is so prejudicial to health as to make the legislature forbid its use. Indeed, while tobacco is encouraged, it would be inconsistent to forbid chicory, which is comparatively innocent; and therefore all that can be done is to enact that those who desire pure coffee shall have it when they ask for it, as far as this can be effected by legislative interference.

Cocoa and Chocolate.

219. Cocoa and Chocolate are both prepared from the seeds of the *Theobroma cacao*, which is cultivated in the West Indies and in South America. The seeds are enclosed in pods, resembling in some respects a cucumber, each of which contains a considerable number of them, extending on the average to about twenty-five or thirty. These seeds are somewhat like large almonds, and vary a good deal in appearance and quality, according to the place from which they are imported. *Cocoa* is prepared from the beans or seeds by first freeing them from the surrounding pulp, and then gently roasting them in an iron cylinder, with holes in its end to allow the vapour to escape, being, in fact, an apparatus similar to a coffee-roaster. When the aroma is well developed, the seeds are ready for conversion, and they are turned out of the cylinder, cooled and freed from their husks, after which they are ground, and become the "cocoa" of the shops. *Chocolate* is very similar in its composition to cocoa, but it is manufactured into cakes, with the addition of sugar, starch, or arrowroot, in order to bind it, and of vanilla or cinnamon, to add to its flavour.

220. The Composition of the Cocoa Seed, deprived of its husk, is more than one-half of it fatty matter, the remainder being made up of starch, gum, lignine, theobromine (analogous to theine), albuminous matter, and a red colouring matter. It is, therefore, an exceedingly

nourishing food; and, when suited to the particular stomach, well adapted to strengthen and fatten invalids who have lost flesh from disease or bad living. Cocoa-beans, as roughly ground, are sold as *cocoa-nibs;* when crushed between rollers, they become *flake-cocoa;* made up with starch and ground into a powder, they are *homœopathic-cocoa*, or *breakfast-cocoa*, *soluble-cocoa*, *patent-cocoa*, &c.; and, again, with the addition of the substances already mentioned, and converted into cakes, *chocolate*, or *vanilla chocolate*, &c.

221. Cocoa and Chocolate are adulterated to a considerable extent, but not in the same injurious manner as tea, or to the same extent as coffee. Of fifty-six samples examined by Dr. Hassall, eight only were genuine, forty-three contained sugar, and forty-six starch, in the shape either of wheat, potato-flour, or sago-meal. Chocolate professes to be a manufactured article, and therefore it is not surprising that it is found to contain sugar, sago-meal, arrow-root, &c. These substances can only be detected by the microscope, and as there is little opportunity of buying, roasting, and grinding the seeds, the public must content themselves with relying upon the character of the vender. Cocoa nuts are sold by retail, at 7d. and 8d. per lb., so that they might be roasted and ground; and I do not see why this might not be done by any one who is in possession of a coffee-roaster, and is tolerably handy in its use. There is, I believe, considerable practice required in order to arrive at the proper degree of heat necessary for the operation, and also in removing the shells, and this probably is the reason why the attempt is not made. Moreover, the adulteration is not to any great extent, and the article sold is generally a pleasant and agreeable one, and without any deleterious compound. There seems to be no fraudulent reason for the addition of sugar, or arrow-root, or sago, since they are not cheaper than cocoa, and hence it can only be in order to improve the quality that they are added. The latter articles, I believe, make it taste more smooth and soft in the mouth, and the sugar is said to preserve it from injurious fermentation.

222. The Wholesale Price of Cocoa-seeds is as follows, to which must be added 1d. per lb. for duty, and the retailer's profit, as well as the loss in roasting, which is about 8 per cent.:—

		s.	d.		s.	d.
Trinidad cocoa	per cwt.	38	0	to	47	6
Grenada	,,	36	0	to	46	0
Guayaquil	,,	44	0	to	45	0
Para	,,	36	0	to	38	0

THE RETAIL PRICES are as follows:—

		s.	d.
Dietetic cocoa	per lb.	1	0
Soluble cocoa	,,	0	6
Finest cocoa	,,	0	8
Fry's patent cocoa	,,	1	0
Cocoa nuts	,,	0	8
Cocoa nibs	,,	0	10
Chocolate paste	,,	1	7
Chocolate powder, in tins	,,	1	5
Chocolate powder, loose	,,	1	1
Best plain chocolate	,,	1	0

223. TEA, COFFEE, AND COCOA are sold in enormous quantities to all classes, and are equally useful in keeping up health and nervous power under all circumstances. Tea is not much used except in private houses and hotels; but coffee is now sold in prodigious quantities in coffee shops, and in pastry-cooks' shops also, throughout London and the large towns. Instead of going in all cases to the public-house for his gossip or his paper, recourse may now be had by any one to the coffee-house, where for a small sum, varying from 2d. to 6d., a cup of coffee and a sight of the periodicals of the day may be obtained. Both coffee and fermented liquors seem to have a tendency to produce a desire to smoke tobacco, or at all events most of those who frequent either coffee-shops or taverns are addicted to this habit, and therefore it is not easy to compare mere coffee-drinkers with mere beer or spirit-drinkers, and I am inclined to believe that those smokers who confine themselves to coffee, smoke to a greater extent than those do who imbibe fermented liquors. I believe, also, that tobacco in excess is more injurious than either spirit or beer, and therefore so long as its use is mixed up with that of coffee, the full benefit of the change will not be felt.

SECT. 2.—SUGAR, TREACLE, AND HONEY.

224. SUGAR, as consumed in this country, is the produce of the sugar-cane, some of it being imported from the West Indies, other qualities from Brazil, Porto Rico, and Manilla, and others again from the East Indies, the Mauritius, and Java. From this wide field it will appear that a considerable proportion of our sugars are still the produce of slave-labour; and such a lamentable result seems to be inevitable as long as we require an amount of sugar which free labour alone is not able to produce.

225. THERE ARE TWO KINDS OF SUGAR, which are chemically different, and are known as cane-sugar and grape sugar, the former

being obtained from the sugar-cane, the maple-tree, the root of the beet, the mallow, and some other forest trees and cultivated plants; while the latter is contained in varying quantities, in those fruits which are more or less sweet, especially in the grape, fig, plum, &c. HONEY contains a portion of each, as in fact do most sweet substances, and even the cane-sugar itself, especially the moist sorts, in the shape of TREACLE, which is composed almost entirely of grape-sugar.

226. CANE SUGAR consists, like all sugars and similar compounds, of carbon, hydrogen, and oxygen, and is therefore free from nitrogen altogether. The proportions of these in crystallized cane-sugar are stated in the usual way by the following formula:—Carbon twenty-four, hydrogen twenty-two, oxygen twenty-two. It is to be found in the several canes, trees, and roots mentioned in the last paragraph, from which it is extracted by various processes, according to the nature of the substance containing it. It is perhaps most readily obtained from the maple-tree, which in America is found extensively in the natural forests, and only requires tapping with an auger, and the insertion of a small pipe, to cause the saccharine and limpid sap to flow out, and by the application of heat alone in an iron vessel suspended over a fire, an excellent crystallized sugar is produced. When sugar-canes are the sources of sugar, a mill is used to crush them between its rollers, and the expressed juice being collected is slowly evaporated, until, by the aid of the hydrate of lime, the sugar is separated in a crystalline form. The lime acts by coagulating the albumen, and separating it, together with the earthy phosphates and waxy matter. The resulting mass is partly composed of *raw* or *Muscovado sugar*, and partly of *molasses* or *treacle*, the latter being drained off, and leaving the former behind. This raw sugar is further refined by re-dissolving it in water, and adding albumen, in the shape of blood or white of egg, with a little lime-water, and heating the whole till it boils; the albumen acting in the same way as in other cases of clarifying, by entangling the foreign bodies in its meshes as it is being converted from the fluid to the semi-solid condition. The solution, though now clear, is still coloured, and requires to be passed through animal charcoal, in order to get rid of this adjunct. After which, the solution or syrup is evaporated again, and poured into conical earthen moulds, where it solidifies in process of time, and becomes that irregular crystallized mass known as *loaf* or *lump sugar*. This requires to be still further cleaned, by passing through it a stream of clear syrup, after which it only remains to dry

it in a stove, and the loaf is fit for use. Sometimes a fine and soft *clay* is placed over these moulds, serving still further to assist the clarifying process by straining the syrup. When crystallization is suffered to take place slowly, and without disturbance, a more perfect crystal is produced, known as *sugar candy*. In most cases evaporation is conducted in close boilers exhausted of air, called *in vacuo*, by which the boiling point is reduced from 230 degrees to 150 Fahrenheit, and the risk of burning is materially diminished. On the continent of Europe, beet-root is cultivated largely, with a view to produce sugar, but the process is tedious and expensive, and the sugar cannot compete in price with that from the sugar-cane. Pure cane-sugar separates from the syrup in crystals, having the figure of a modified oblique rhombic prism, of a large size, transparent, and nearly or quite colourless, according to the condition of the syrup. It has a pure sweet taste; is soluble in one-third of its weight of cold water, and in a larger quantity of alcohol. When moderately heated it melts, and solidifies in cooling into a transparent mass, without form, known as *barley-sugar*. On the application of a higher degree of heat it is decomposed, and more or less blackened or browned, and this effect is also produced by the long-continued boiling of the solution at a high temperature, which also tends to prevent its crystallizing. In this last condition it is well known as *caramel*, and is used for colouring spirits, wines, &c., containing a smaller proportion of hydrogen and oxygen. Carbon 24, hydrogen 18, oxygen 18.

227. Grape-sugar, known in chemistry also as *glucose*, consists of a larger proportional of hydrogen and oxygen than cane-sugar or caramel described in the last paragraph. For grape-sugar itself, the formula is thus represented:—Carbon 24, hydrogen 28, oxygen 28. It may be extracted from the juice of sweet grapes, or from honey, of which it forms the solid crystalline portion, by washing with pure alcohol, which dissolves the fluid syrup; or it may be artificially prepared by chemical agency from starch, woody fibre, &c. Grape-sugar is readily distinguished from cane-sugar, by being less sweet and more insoluble in water; also by the difference in the shape of its crystals, which are never of definite angular forms, but in granular warty masses, which seldom present any crystalline form at all. It resembles cane-sugar in being nearly white when pure, in melting, and in suffering the same discolouration by heat. Cane-sugar combines readily with lime, baryta, and oxide of lead, while grape-sugar is with difficulty made to unite with them. Besides these distinguishing marks, the two may be

known from each other by taking a portion of the solution to be tested, and mixing with it a solution of sulphate of copper, and a solution of caustic potash, both being in excess. A deep blue liquid is the result in any case, which, when heated, indicates the kind of sugar present by the following appearances:—If containing cane-sugar, at first but little change is produced; but after a short time small quantities of red powder fall to the bottom, in spite of which the liquid retains its blue colour. The presence, however, of grape-sugar is at once indicated by a copious greenish precipitate, which rapidly changes to scarlet, and afterwards to a deep reddish brown, leaving a nearly colourless solution. By this test after a little experience, the proportional quantities of each may be discovered in any solution according to the shades of colour in the deposit.

228. Liquorice Sugar is another variety of sugar which is found in the root of the liquorice plant, and is soluble in water, but refuses to crystallize. A remarkable fact is, that it cannot be made to ferment.

229. Milk Sugar is another curious sugar, found in milk, and composed of exactly equal proportionals of carbon, hydrogen, and oxygen. It is obtained in large quantities from whey, by evaporating it to a syrup, and purifying the sugar, which crystallizes out, by animal charcoal. It presents the form of a four-sided prism, and is very hard, white, and transparent. The taste is very slightly sweet, and it feels gritty to the teeth when undissolved. It also is not readily fermented.

230. The Sugar of Manna is contained in the substance known as manna, which is an exudation from a species of ash. This sugar is fusible without loss of weight, is readily dissolved in water, has a strong and powerfully sweet taste, and has no purgative qualities, which reside in the other elements of the manna. This sugar, like that of liquorice, refuses to ferment.

231. The Impurities of Cane-sugar consist of fragments of the sugar-cane, vegetable albumen, blood (from the material used in refining it), an animalcule peculiar to it, woody fibre, and starch; besides which may be enumerated, lime, lead, iron, sand, and salt, all of which are found in the raw sugar, and but seldom in the refined specimens, or loaf sugar, unless these contain a portion of the molasses still adhering to their crystals. Some of these impurities are owing to the ordinary processes of manufacture, and are unintentional, while others are due to those wilful adulterations called in

the trade "handling." This term is ostensibly applied to the mere mixing of different qualities of sugar together; but too often it degenerates into an introduction of other substances, either directly or indirectly, and it cannot be justified when this is the case. These adulterations are shown to occur to a very great extent in the raw sugars sold in our shops; and as they are scarcely practised at all in white or lump sugar, the public can avoid them by purchasing the latter article.

232. The above Impurities may be detected by various methods, some of which are easily practised by the public, while others are confined to the microscopist and the chemist. To the two last it is needless to allude here further than to mention that, by their aid, good and pure sugar may be with certainty distinguished; and for the details of the methods used in the processes, I must refer to Dr. Hassall, and to the chemical writers of the day. But, besides these, the ordinary senses serve to point out several adulterations, as, 1st, pure raw sugar is light in colour, highly crystallized in large grains, and free from moisture, whilst the opposite condition is marked by opposite qualities, the sugar being earthy, damp, and heavy. To the touch, a good sugar should feel dry, and free from stickiness or clamminess; and when folded in paper it ought not to render it moist, and stained. Coarse and thick brown paper is used by the grocer to avoid showing this defect, which is very perceptible when thin and porous paper is used as a wrapper. This moistness is due to the presence of water in excess, which is of no value to the consumer, and yet is paid for at the price of sugar.

233. In Purchasing Sugar, therefore, the public should, as advised by Dr. Hassall, select either lump-sugar in any degree of coarseness which they can afford, or else the well-crystallized varieties of raw sugar, which are not readily handled, and thus mixed with inferior qualities. It is now, and has for some time been, the practice for the grocer to sell his sugar at cost-price, relying upon his tea for his profit; but this is the fault of the trade, and the public are not responsible for it. For this reason many of those grocers whose high and honest dealings have insured a command of the trade, refuse to sell sugar at all, and confine their attention entirely to tea, spices, arrowroot. &c. There can be no doubt that the public would much prefer to pay a trifle more for a genuine article; and, indeed, as it would go a great deal further, it would really be as cheap, for no quality so soon tells its own tale as this. Articles must be sweetened to the pa-

late, and if a pound and a half of any kind of sugar will answer the purpose of two pounds, the intention is fulfilled, and a saving of the differential quantity is effected. Good cane-sugar, which possesses the power of sweetening in the highest degree, is required by our housekeepers; and if its place is partially supplied by starch, ground cane, flour, sand, or any other substance, in proportion to the adulteration will she be obliged to increase the quantity employed.

Honey.

234. Honey is readily to be procured in the shops, but its quality will be found fully described under the article on bee-keeping in the next chapter.

235. The varieties of sugar known in the trade, and their wholesale prices, are as follows, in which is comprehended the duty, which is 13s. 9d. per cwt. for raw, 15s. for clayed, 17s. 6d. for white, and 20s. for refined. Molasses pay 5s. 3d. per cwt.

Price of Sugar per Cwt.

	s.	d.		s.	d.
Single refined—					
Brown lumps	51	6	to	52	0
Grocery ditto	53	0	,,	54	6
Patent—					
Double loaves	54	0	,,	00	0
Hambro' ditto	52	6	,,	55	6
Tittlers	52	6	,,	54	6
Wet lumps	47	6	,,	50	6
Pieces	41	6	,,	46	0
Bastards	34	6	,,	39	6
Crushed (bond)	34	6	,,	35	0
Dutch crusted (bond)	32	0	,,	34	0
West Indian raw—					
Fine yellow	42	6	to	43	6
Good ditto	41	0	,,	41	6
Low to mid.	40	0	,,	40	6
Good brown	39	0	,,	39	6
Brown	37	6	,,	38	6
Crystallized	39	6	,,	44	6
Barbadoes	37	0	,,	44	6
Mauritius—					
Brown	45	0	,,	50	6
Yellows	40	0	,,	44	0
Grainy	39	6	,,	46	0
East India, Bengal—					
Good and fine white	46	0	,,	47	0
Low and mid. white	43	0	,,	45	0
Yellow	39	6	,,	40	0
Brown	34	6	,,	37	6

	s.	d.		s.	d.
Dobah and grainy	32	0	,,	52	0
Madras & Penang, brown	33	6	,,	39	0
Yellow	38	0	,,	42	0
Fine	42	6	,,	45	0
Crystallized	40	6	,,	51	6
Havannah					
White (bond)	30	6	,,	34	6
Brown and yellow	38	0	,,	51	0
Brazil, white	44	6	,,	46	0
Brown and yellow	37	0	,,	42	6
Manilla	36	0	,,	40	0
Java	39	0	,,	50	0
Porto Rico	37	0	,,	44	0
Treacle, British	20	6	,,	21	0
Patent	20	6	,,	00	0
Inferior from West India	18	0	,,	00	0
East India	17	6	,,	00	0

By an examination of this list it will appear that single refined sugar is selling wholesale at fifty-three shillings per cwt., or rather more than fivepence-halfpenny per lb., which is actually the retail price of the same article. The coarsest West India brown is also thirty-seven shillings and sixpence, or fourpence per lb.; and here, again, every grocer's shop furnishes an equal article by retail. Unless, therefore, they avail themselves of adulteration, or of some cabalistic method known only to the trade, they really do, as they allege, sell this article at the same price as they give for it, which no one can expect or wish them to do who values what is right between man and man.

Sect. 3.—Spices.

236. The Ordinary Spices which are used in housekeeping, and are sold at the grocer's are *pepper* (white, black, and cayenne), *mustard*, *ginger*, *nutmegs*, *mace*, *pimento*, or *allspice*, *cloves*, *cinnamon*, and *cassia*. All of these spices are more or less pungent to the taste and stimulating to the stomach, and are used as additions to food, not as food itself. For these qualities they depend upon an essential oil in most cases, varying in each particular case. Pepper, however, has a nitrogenized principle, as already mentioned, similar in composition to theine and caffeine, and called *piperine* (see par. 854).

Pepper.

237. Pepper is the produce of two allied plants (known as *Piper nigrum* and *longum*), and the part used is the berry, dried in the sun. *Black* and *white pepper* are both obtained from the berry of *Piper nigrum*:

the former being the entire berry, ground, while the latter consists of the berry deprived of its outer covering, or husk, before it is reduced to powder. Long pepper is not ground, and is not much used in the present day. Peppercorns, being these berries, are imported from Penang, Malabar, and Sumatra. The best are those which are not too small, nor too much shrunk in drying, but which feel heavy in the hand, and sink in water. In looking at a section, the outer part, which is black, or reddish-black, is easily distinguished from the inner or central, which is more or less white, and brittle, hard towards the exterior, and soft and powdery towards the centre. In separating these parts, as for the purpose of procuring the white pepper, an inner reddish covering remains attached to the internal white structure, and this being ground up with it, is faintly indicated in the pure white pepper-powder by small reddish specks. The active properties of this spice depend upon an *acrid resin*, an *essential oil*, and a substance before alluded to, called *piperine*. The outer cortical part contains the resin, in the inner coat lies the oil, and within the internal or white structure is the *piperine*.

238. Pepper, both black and white, is adulterated with a variety of articles—as, the flour of linseed, mustard, wheat, sago, and arrowroot. Pepper-dust, also, being the sweepings of the floors of warehouses, and known as P.D., is largely used in making up a low-priced pepper. Powdered cayenne is likewise said to be used, but, according to Dr. Hassall, not to any extent. Chemistry and our natural senses are greatly at fault in detecting these adulterations; and the microscope is the chief means upon which reliance can be placed, and, as is proved, a very sufficient one.

Cayenne Pepper.

239. Cayenne Pepper is composed of the pods of several species of *capsicum*, which is an annual herbaceous plant, a native of America, but cultivated in the West and East Indies, and to some extent in this country. Each pod is made up of three parts, an outer skin, an inner parenchymatous substance, and a quantity of small seeds. All these are ground up to constitute the pepper sold as cayenne, but it is to the first that it chiefly owes its pungent taste. It contains a very active principle which is called *capsicin*, and of which a very minute quantity, even as little as half a grain, diffused throughout a room will set a whole party of people sneezing.

240. This Pepper is far more subject to adulteration than black

and white pepper, and is in fact scarcely ever free from mixture either with red-lead, red-ochre, or common salt; four only out of ninety-eight samples examined by Dr. Hassall being perfectly genuine; thirteen presented red-lead, often in poisonous quantities, and in seven Venetian-red, red-ochre, or brick-dust, were found. Six of the samples contained salt in large quantities, with rice and colouring matter, and in the same number also appeared rice mixed with turmeric and cayenne, and coloured with red-lead or some ferruginous earth. It is said that this pepper is often imported in a ground state, and therefore a good deal of this sophistication is due to foreign roguery. The mineral ingredients are easily detected by chemical means, as red-lead, vermilion, &c.; but for most of the other articles the aid of the microscope is again required.

241. With a knowledge of the difficulty in detecting adulterations, it behoves us all to deal for our peppers only with those who are of high character and standing in the trade; but as our senses tell us pretty clearly the strength of the spice, and as all the adulterations of black and white pepper are tolerably innocent, no harm accrues, except to the purse, from the substitution of a weak spice for a strong one. In the case, however, of cayenne pepper, the presence of red-lead, vermilion, or other mineral colouring matter is of serious importance, and should be cautiously avoided by a careful dealing with honest tradesmen.

Mustard.

242. Mustard is obtained from the plants known as the black and white mustard plant (*Sinapis nigra* and *alba*). The former of these has smooth seed-vessels, and reddish or blackish-brown seeds, which are very pungent; while the latter has rough or hairy pods and yellow seeds, less pungent than those of the black mustard.

243. The Seeds of the Black Mustard are composed of cellulose matter, containing in addition a volatile and a fixed oil of mustard; also, two peculiar substances known as myronic acid and myrocene, all of which are deficient in white mustard seed. The fixed oil exists in the seed, but the volatile oil is formed in the same manner as the essential oil of bitter almonds, by the joint action of water, and a peculiar coagulable albuminous matter, called *myrocene*, upon a substance very imperfectly known, which is termed *myronic acid*. This acid has no smell, and is not volatile, but is bitter to the taste, and contains *sulphur* and *nitrogen*. Heat coagulates myrocene, which is necessary

to the formation of the essential oil, and hence mustard should always be mixed with hot water to develop its pungent powers properly.

244. Adulteration in this article seems to be the rule, and a pretty invariable one; for in no single case did Dr. Hassall find pure mustard seed sold in London. The nature of the admixture was in nearly all cases the same, genuine mustard being more or less mixed with wheaten flour, and coloured with turmeric. Even in the case of an article which was specially sent up from Newcastle-on-Tyne, as a perfectly pure specimen, a very small quantity of turmeric was discovered, which the manufacturer afterwards candidly admitted was added to the mustard, for the purpose of heightening its colour. This admission must be highly gratifying to the *Lancet* Commissioners, as the quantity was only two ounces in fifty-six pounds, or one part in 448.

245. In Purchasing Mustard, there is no guide short of the microscope but the palate, as the full power is not developed until the flour is mixed with hot water. The adulterations are, however, only of importance as far as the money value is concerned, as the turmeric is innocent enough of all other mischief. Most people can judge of the strength of this spice when it is used, and they may therefore readily take this as their guide in dealing with their grocer for future orders.

Ginger.

246. Ginger is cultivated in Asia, Africa, and the tropical parts of America, and is the root of *Zingiber officinale*, a perennial plant, of which the stem reaches to the height of three or four feet. The roots are dug up at the end of the first year; they are well washed, and then they are stripped of their outer skin, or left as they are, constituting in this way the two primary divisions of ginger into *coated* and *uncoated;* in addition to which, it is sometimes imported from Jamaica in a *green* state, preserved in jars with syrup. The two first divisions are sold either in the state in which they are imported, or finely ground, and sifted with great care.

247. Ginger owes its pungency to a volatile oil with an acrid resin, which are contained in it, and mixed up with other vegetable substances, as gum, starch, and woody fibre. Ground ginger contains all the elementary principles of the root.

248. It is Adulterated with wheat flour, sago, potato flour, cayenne pepper, mustard-husks, and turmeric powder, none of which are prejudicial to health, and the fraud is only on the pocket.

Nutmegs and Mace.

249. Nutmegs and Mace are both obtained from the nutmeg tree, of which there are three species—*Myristica fragrans*, *M. fatua*, *M. malabarica*. Together, they are the fruit of the tree, which is similar in appearance to a pear-tree, and produces a fruit about the size of a peach, but shaped like a pear, and smooth externally. The outer fleshy part of this is the pericarp, and this when ripe separates into two longitudinal sections, within which lies the seed proper, or *nutmeg*, enclosed in two coats, besides the *mace*, which fills up the space between these and the pericarp. The tree, known to botanists as *Myristica fragrans*, is cultivated in the Molucca Islands, as well as in Java, Sumatra, Singapore, Penang, the Island of Bourbon, Bengal, Madagascar, and the West Indies; and these trees produce the *true nutmeg* of commerce, which is round, and of a strong aromatic flavour and smell. A second and inferior kind, called the *wild* or *false nutmeg*, is obtained from the *Myristica fatua* and *M. malabarica*, growing in a wild state; and they may be distinguished from the true nutmeg by being longer and paler than it.

250. Mace is also *true* or *wild*, according as it is obtained from either kind of nutmeg tree. As imported into this country, the true mace is of a golden or orange yellow, transparent and horny. False or wild mace is of a dark red colour, and deficient in flavour and smell.

251. The Nutmeg, as well as the Mace, contain a fixed, and also a volatile oil, as well as starch and woody matter.

252. Adulteration.—It might readily be supposed, that as these spices are not powdered, but are sold as imported, that no adulteration could possibly be practised; and it appears in reality that very little is attempted. The only fraud is found to consist in the abstraction of the volatile oil by distillation, which deprives the nutmeg and mace of their chief flavour and utility as spices. In order to preserve the nutmeg from insects, it is often soaked in lime-water, or covered with powdered lime; but this does not seem to be a fraud, but rather a preservative. It therefore need not be guarded against, but the presence of the full complement of the oil should, if possible, be ensured. This can only be done in practice by attending to the flavour and smell, and comparing them with the recognised genuine article. The shape is a good guide to the true nutmeg, and purchasers should always select those of a round form, avoiding those which are like dates

in appearance, or even at all elongated beyond a very slight departure from the true circle.

Pimento, or Allspice.

253. Pimento, or Allspice, also called Jamaica pepper, is the berry of a tree bearing the first name, and growing in the West Indies, from which it is imported in bags. There are two qualities of it, but one only is extensively used in this country.

254. Pimento, like most other spices, owes its qualities as a condiment to its essential oil, which is contained in considerable quantities in the berries mixed with gummy and resinous matter, astringent extract and fatty oil. This essential oil is readily obtained by distillation.

255. The Adulteration of this spice is so trifling as scarcely to require alluding to; and as the price of Pimento at present is from 4½d. to 4¾d. per lb., with a duty of 5s. per cwt., the retailers make a fair profit in selling it at 8d., and need not have recourse to adulteration.

Cloves.

256. Cloves are the flower-buds of the *Caryophillus aromaticus*, which is grown in the Molucca Islands, Sumatra, the Mauritius, Bourbon, Cayenne, Martinique, and St. Vincent. They present a peculiar oblong appearance, too well known to need minute description, with a pungent and aromatic taste, which is highly agreeable to most people. Like the other spices, cloves contain an essential oil, besides resin, tannin and woody fibre. The oil is extracted in considerable quantities, and sold separately for various purposes.

257. Little or no adulteration takes place in this article. The wholesale price is from 4½d. to 1s. 2d. per lb.; and the duty being 2d. per lb., together with the retailer's profit, bring them up to the retail price of 1s. for Bourbon and Cayenne, 1s. 4d. for superior Bourbon, and 2s. for Penang cloves.

Cinnamon and Cassia.

258. Cinnamon and Cassia are the bark of two species of *Cinnamomum;* that producing the former bearing the specific name of *Zeylanicum.* The cinnamon tree is cultivated chiefly in Ceylon, but sparingly in Bombay, Malabar, and Java. The bark, as sold, is peeled from the three-year-old branches, and dried in the sun; and its quality

varies considerably, but its external characters are generally pretty nearly the same. Cassia, or the bark of the *Cinnamomum cassia*, is brought from China, Malabar, Bombay, and the Mauritius; it resembles the true cinnamon in flavour, though less delicate and not so sweet, and attended with a certain degree of bitterness. It is constantly substituted for cinnamon, and it is necessary, therefore, to endeavour to distinguish the one from the other by our ordinary senses if possible.

259. The Bark of Cinnamon is not much thicker than drawing-paper, and breaks with an uneven margin, showing a coarse arrangement of its fibres. It also consists of several concentric layers of bark, one within the other. These are called *quills*, and are of a pale brown, with a sweet aromatic taste, unaccompanied by any bitterness or astringency.

260. Cassia Bark is considerably thicker and coarser, and has a short fracture and smooth edge. It has generally only one, or at most two quills, within the external one; and the taste is a coarse imitation of cinnamon with a strong tendency to leave an astringent bitter on the tongue. By these characters the bark of the one when whole may be distinguished from the other; but when powdered, the aid of the microscope is required to detect the imposition, which is extensively practised; and, failing this, the character of the vender is the only safeguard. Cassia buds are also imported.

261. The Wholesale Price of Cinnamon ranges from 1s. to 2s. 8d. per lb., with a duty of 2d. per lb. Cassia lignea is imported at prices varying from £5 10s. to £6 per cwt., with an addition of 9s. 4d. per cwt. for duty. With this slight difference in the price, it must occasion surprise, that the cheaper article should be substituted for one which can be bought for the same money in its inferior qualities.

Mixed Spice.

262. Mixed Spice, as implied by the name, is a compound of the various ordinary spices, as, ginger, pimento, cassia, &c. It is largely adulterated, and cannot therefore be recommended, nor is its use at all required, inasmuch as the cook may in all cases use her own judgment to greater advantage.

263. The following table exhibits the wholesale and retail prices of the spices generally kept by the housekeeper:—

WHOLESALE AND RETAIL PRICE OF SPICES.

	Wholesale Price.		Retail Price.
	£ s. d.	£ s. d.	s. d.	s. d.
Cinnamon, 1st quality ... (duty 2d.) per lb.	0 1 10	to 0 2 7	4 0	to 4 8 per lb.
,, 2nd ,, ... ,, ,,	0 1 4	, 0 1 9		
,, 3rd and 4th ... ,, ,,	0 1 0	,, 0 1 3		
Cassia lignea ... (duty 9s. 4d.) per cwt.	5 10 0	,, 5 18 0	1 6	,, 2 0 ,,
Cassia buds ... ... ,, ,,	7 10 0	,, 8 0 0		
Cloves, Amboyna ... ... (duty 2d.) per lb.	0 0 $7\frac{3}{4}$	,, 0 0 0	1 4	,, 2 0 ,,
,, Bencoolen or Penang ,, ,,	0 1 0	,, 0 1 2		
,, Bourbon and Cayenne ,, ,,	0 0 $4\frac{6}{8}$	,, 0 0 $4\frac{7}{8}$		
Mace ... ... (duty 1s.) per lb.	0 1 6	,, 0 2 4	4 4	,, 5 4 ,,
Nutmegs, 1st quality ... ,, ,,	0 3 1	,, 0 4 6	4 4	,, 5 4 ,,
,, 2nd ,, ... ,, ,,	0 2 2	,, 0 2 8		
,, 3rd ,, ... ,, ,,	0 2 0	,, 0 2 1		
Pepper, Penang (duty 6d. & 5 per cent.) per lb.	0 0 $4\frac{3}{4}$	,, 0 0 $5\frac{1}{8}$	1 2	,, 1 4 ,,
,, Malabar ,, ,, ,,	0 0 $5\frac{3}{8}$	,, 0 0 $5\frac{3}{4}$		
,, Sumatra ,, ,, ,,	0 0 $5\frac{1}{4}$	,, 0 0 $5\frac{5}{8}$		
,, White ,, ,, ,,	0 0 $7\frac{1}{4}$	,, 0 0 8	1 6	,, 1 8 ,,
Pimento, Jamaica (duty 5s. per cwt.) per lb.	0 0 $4\frac{3}{8}$	,, 0 0 $4\frac{3}{4}$	0 7	,, 0 8 ,,
Ginger, Jamaica ... ...(duty 5s.) per cwt.	2 5 0	,, 6 18 0	0 8	,, 2 4 ,,
,, ,, fine large ,, ,,	7 10 0	,, 10 0 0		
,, East India Cochin ,, ,,	1 16 0	,, 5 15 0		
,, African ... ... ,, ,,	1 6 0	,, 1 6 6		
Mustard	—	—	0 6	,, 1 6 ,,
Mixed spice	—	—	2 0	,, 2 4 ,,
Long pepper	—	—	1 4	,, 1 6 ,,
Cayenne pepper	—	—	2 0	,, 2 6 ,,

SECT. 4.—MISCELLANEOUS GROCERIES.

264. These consist of *rice* (which is also often sold by the corn-chandler), *arrow-root*, *sago*, *tapioca*, *semolina*, *maccaroni*, *vermicelli*, and various farinaceous foods, as *tous-le-mois*, *soujee*, &c.

RICE.

265. Rice contains a large proportion of starch and gummy matters, but very little of the nitrogenized compounds and oily matter, as compared with the cereal products which have already been examined. It is, therefore, only for certain purposes that this grain is useful—as, for instance, to produce fat; and as it has a tendency to constipate the bowels, it is much employed when there is a predisposition to diarrhœa. As obtained by mere thrashing and dressing the grain from the straw, rice is covered with a thin husk, and is then known as *paddy*, in the rice-growing countries. It is here always deprived of this husk, though often imported in it, and in this state it forms that well-known article *rice*, which is ordinarily distinguished as *Carolina rice* when of the best quality imported from America, and *Patna* when the produce of the East Indies. These grains are ground, and then known as *rice-flour*, or *ground-rice*, which is only used for making puddings. For even if rice

is adopted as a cheap addition to flour for making bread, it is boiled *whole*, and not in a ground state.

266. The Wholesale Price of Rice, per cwt., is at present as follows:—

	s.	d.		s.	d.
Carolina, London dressed	46	0	to	0	0
Patna	12	6	,,	18	0
Bengal white	9	0	,,	12	6
Arracan	8	0	,,	9	6
Madras	9	0	,,	9	0
Java	12	0	,,	16	0

By retail, rice is sold at prices varying from 1½d. to 4½d. per lb., and ground-rice at about 3d. to 6d. per lb.

Arrowroot.

267. Arrowroot is a species of starch, obtained from the roots of several plants; that from the *Maranta arundinacea* is considered the best, and is generally sold as Maranta or West India arrowroot, or sometimes as Bermuda or Jamaica arrowroot. The arrowroot obtained from *Tacca oceanica*, and from the *Manihot* and *Curcuma*, as well as the produce of our own potatoe, are vastly inferior to the real *Maranta*, by which name the arrowroot from that plant ought to be designated, for the sake of distinction.

268. Maranta Arrowroot is almost entirely composed of starch-granules. To the eye it should be of a dull flake-white, crackling under the pressure of the finger; *and when double its weight of concentrated hydrochloric acid is poured upon it, it should become an opaque paste.* By the addition of a pint of boiling water to a table-spoonful of arrowroot previously mixed with a little cold water, it makes a transparent jelly, which becomes thinner in the course of twenty-four hours, the good quality of the arrowroot being indicated by the time which it occupies in getting thin. Potato arrowroot, as well as some other inferior kinds, when mixed with a similar quantity of hydrochloric acid to that mentioned above, form a *clear* and *transparent* paste, by which they may be distinguished from the Maranta.

269. Maranta Arrowroot is adulterated by mixing with it, or substituting for it, the inferior kinds, or sago-meal, which, being exceedingly cheap, is very commonly made use of for the purpose, either alone or mixed with potato-starch. The microscope affords the best means of detecting these substitutions, but the test with hydrochloric acid (mentioned in last par.) is a very serviceable one for ordinary purposes.

270. The Wholesale Price of Maranta Arrowroot varies from 5½d. to 1s. 4d. per lb. That from Bermuda fetches the highest price. African arrowroot is now sold as low as 4½d. per lb., wholesale. The duty is only 4½d. per cwt. By retail, good and genuine Maranta arrowroot is sold as low as 1s. per lb.; but the best qualities fetch 2s. 6d. per lb.

Sago.

271. Sago, like arrowroot, is a kind of starch, the produce of the *Sagus farinifera*, an Indian palm, of which it is the pith—washed, to deprive it of its cellular tissue. In order to convert the paste resulting from its admixture with water into the round granules in which it is imported into this country, the pulpy matter, when half dry, is forced through a perforated plate, and then rubbed into little balls. Its low price prevents any great fraud in substituting any other farina for it.

272. The Retail Price of the finest pearl sago is from 3d. to 3½d. per lb.

Tapioca.

273. Tapioca is the pith of the *Manihot* tree, washed, as in the case of sago, and converted by art into masses of a larger size, and more irregular shape. It is imported from Brazil and the East Indies, and is exceedingly nutritious and agreeable to the palate when flavoured by the addition of milk, spices, fruits, &c. It is very wholesome at all periods of life, and though quite as nourishing, yet it does not cause flatulence or constipation like rice. It is adulterated to some extent with sago, potato-starch, &c., which can scarcely be detected, except by the microscope.

274. The Retail Price of Tapioca is from 8d. to 10d. per lb.

Semolina.

275. Semolina, as now sold, is a preparation from wheat flour, by removing part of the starch, as is the case also with Semola, which is very similar in its composition to semolina. Both are chiefly composed of the gluten of wheat, mixed with a small quantity of starch, and converted by art into small round grains resembling sago; yet it is more angular in the shape of its granules than that well-known article. Both are very nourishing, and less constipating than ordinary wheat flour.

276. The Price of Semolina, by retail, is from 5d. to 7d. per. lb.

Semola.

277. Semola is prepared from the very finest wheat, by making flour into a thick paste with distilled water, washing out the whole of the *starch*, and then adding to the gluten its own weight of pure flour. The paste of gluten and flour is then dried, at a temperature not exceeding 150° Fahrenheit, and granulated. It is useful in those cases where an excess of gluten is desirable, and is prepared and sold by Messrs. Perrins and Barnitt, Conduit-street. It softens by boiling, but is not perfectly soluble in water.

Maccaroni and Vermicelli.

278. Maccaroni and Vermicelli are but fine wheat flour mixed with water, and forced through openings of a certain size to produce the two varieties. The former is about the size of a large goose or swan quill, while the latter is somewhat less than that of the crow. There is a considerable difference in the quality of the article, depending chiefly upon that of the flour of which it is made; and it is supposed that Italian wheat is particularly adapted for the purpose; and hence maccaroni and vermicelli from Italy are considered very superior to any English manufacture, though I believe considerable quantities are really made in this country.

279. The Price of these articles by retail is about 9d. per lb., in boxes of 5 lb. each as imported.

Farinaceous Foods.

280. Of the Farinaceous foods sold for infants, Hard's is the most generally known; but all are composed of wheat-flour, more or less pure, and *baked*, or mixed with bean or potato-flour, which is no improvement. The price is generally three or four times that of the finest and most genuine flour, and therefore, as baking generally costs a mere trifle, the public are imposed upon to an enormous extent, and may readily furnish themselves with an equally good article at one-third the cost.

Tous-les-Mois.

281. Tous-les-mois is only another kind of farinaceous food, consisting generally of wheat-flour mixed with inferior arrowroot. It is said to be prepared from the pith of the *Canica coccinea*. It is now sold at about 4d. per lb.

Isinglass.

282. Isinglass is procured from various parts of various fish; but the true kind is made from the swimming-bladder of the sturgeon. Spurious isinglass is obtained from the intestines of the cod, and called ribbon isinglass.

283. Isinglass consists of gelatine, more or less pure according to the quality. It is imported from Russia, Brazil, and the East and West Indies. The first of these is far the best in quality, whilst that from Brazil is very impure, and fit only for the brewer or refiner. Isinglass is imported in the forms known as *best*, *seconds*, and *thirds*, *leaf-isinglass; purse isinglass*, *long and short staple isinglass*, which all require solution and clearing, as well as further preparation for the market, when intended for culinary purposes. The leaf-isinglass is chiefly obtained from the beluga (*Accipenser huso*), and is that from which the best isinglass is prepared. Each leaf is generally about ten or twelve ounces in weight, and is submitted to the action of rollers worked by steam, which spread it out into a thin ribbon, and it is then cut by a rapidly-revolving cutting machine into the fine shreds in which state it is sold. When dry it is semi-transparent, but on contact with water it soon becomes opaque and swells, and dissolves slowly in it, leaving a very slight residuum of cellular membrane, so thin as not to be perceptible without a very careful examination. Russian isinglass makes a transparent jelly when cold, but that from Brazilian isinglass is somewhat milky.

284. The Adulteration of Isinglass is chiefly by substituting the inferior qualities for the superior; or, again, gelatine for the common kinds of isinglass. To understand this the following article must be examined.

Gelatine.

285. Gelatine is extracted from the bones and hoofs of the ox and sheep, as well as in some cases the horse, by boiling them in water at a high temperature obtained by pressure. Refuse-skins, leather-cuttings, and cod-sounds are also used for the same purpose; in fact, anything containing gelatine, which at any particular time can be purchased at a low rate. These make a jelly more or less pure, which is strained and bleached, and then dried in thin *laminæ*, and cut into shreds by a machine. These shreds, however, are not quite so fine as those of isinglass, inasmuch as the gelatine having no cellular mem-

brane to hold it together, and its molecules also being of a coarser size, will not cohere sufficiently to allow of the same degree of subdivision as isinglass.

286. To distinguish the one from the other, Dr. Hassall gives the following directions, which are sufficient, I believe, for the ordinary observer, to preserve himself from the effects of fraud upon his pocket:—

"The Shreds of Isinglass when immersed in cold water become white, opaque, soft and swollen. The swelling is equal in all directions, so that when viewed with a low power of the microscope (an ordinary lens) they appear more or less quadrangular. In boiling water they dissolve nearly without residue. The smell of the dissolved isinglass, when hot, is somewhat fishy, but not unpleasant. The moistened shreds, or the solution, exhibit to test-paper a neutral, or faintly alkaline, and rarely a slightly acid, re-action. In acetic acid they swell up, and become soft and jelly-like, the greater part of the structure being lost. Lastly, according to Dr. Letheby, 'the ash which results from the incineration of good Russian isinglass is of a deep red colour; it contains but a small portion of carbonate of lime, and never amounts to more than nine per cent. of the isinglass used.'

287. "The Shreds of Gelatine, on the contrary, when placed in cold water, swell up, acquire increased transparency, and become translucent and glass like. The form which they take in swelling is peculiar; they do not, like those of isinglass, swell equally, and remain quadrilateral, but become expanded, flat, and ribbon-like, the broad surfaces corresponding to the incised margins. The dry threads on the uncut surfaces frequently present a peculiar shining lustre, not unlike that of tinsel. In boiling water the shreds do not entirely dissolve, but in most cases a copious deposit falls to the bottom of the glass. The smell of the hot infusion is like that of glue, and therefore disagreeable. The moistened filaments, or the solution of gelatine, usually exhibit a strong acid re-action; this, in some cases, is due to the substances used in bleaching it. Immersion in dilute acetic acid hardens gelatine. Lastly, according to Dr. Letheby, the ash is different from that of isinglass in amount, colour, and composition: 100 grains of gelatine give from 2.3 to 2.6 grains of ash, which is *white*, and contains much carbonate of lime, with some chlorides and sulphates."

288. Gelatine, as now manufactured, especially the superior samples, is quite as good as isinglass for some purposes, though inferior to it for making some of the finer descriptions of jellies, blanc-mange, &c. Its comparatively low price, however, induces many people to adopt

its use for all purposes for which isinglass is ordered in the cooking receipts.

289. The retail price of the best-picked or coarse-cut Russian isinglass is 16s. per pound; Brazil, 7s.; and gelatine, 4s. 4d. to 5s. 6d. per pound.

Sect. 5.—Dried and Candied Fruits.

290. Dried Fruits, which are sold by the grocers, consist of *almonds*, *raisins*, *currants*, *figs*, *prunes*, *Normandy pippins*, and *candied fruit* of various kinds, as lemon, orange, &c.

Almonds.

291. Almonds, both sweet and bitter, are the kernels of two closely-allied varieties of stone-fruit trees. The tree is very similar to the peach tree, but the fruit, instead of being fleshy, is shrivelled and dry. The stone enclosing the almond is also not so hard as the peach-stone, but spongy, and readily cracked. Both sweet and bitter almonds consist of a large proportion of fixed oil, contained in a substance made up of gum, albumen, sugar, and woody fibre; but the bitter almond has also elements which, by distillation, produce a considerable quantity of essential oil of a highly poisonous nature. Sweet almonds are imported in large quantities from Spain, Italy, and Barbary. Those called Jordan are the best, being longer and flatter, with a thinner and paler cuticle to the kernel. Almonds are either used for dessert in their shells, or deprived of them by cracking, and of their skins by immersion in hot water and a little friction, when they are said to be *blanched*. In this state they are also used for confectionery, &c. Bitter almonds are only used in the preparation of the essential oil which is employed for flavouring custards, &c.; but it is highly poisonous, if not employed with great discretion.

Raisins.

292. Raisins are merely grapes dried in the sun, or by stove-heat. The former, called *raisins of the sun*, are the most highly prized; but many sold as such are not entirely dried without the aid of artificial heat. The best Spanish, sold as "Muscatels," or "Valencias," are dried and packed with great care. Smyrna raisins also fetch a high price. The common raisins are dried in stoves, and are mixed with a great quantity of refuse matter and dirt.

Currants.

293. Currants are grapes of a smaller size, dried in a similar manner. They are imported from the Ionian islands in large quantities, packed in casks. In consequence of the disease so prevalent among the grape-vines, both raisins and currants have latterly risen very considerably in price.

Figs.

294. Figs, as sold in the grocer's shop, are the dried fruit of the fig-tree. The fig is a very luscious fruit when eaten green and when dried it is almost as sweet as sugar itself. It is slightly laxative, and is given extensively for that purpose to children. Italy, Spain, and Turkey are the chief sources of this fruit, the last being the most prized.

Prunes and French Plums.

295. Prunes and French Plums are both the dried fruit of varieties of the plum-tree. These are imported from France and Portugal in boxes. carefully packed, and are solely used for the dessert.

Normandy Pippins.

296. Normandy pippins are apples dried in France by the aid of stove-heat, until they have the appearance of leather. They require stewing in syrup, and are then highly prized for the dessert.

Candied Fruit.

297. Candied fruit consists of fruit boiled in strong syrup, and then dried. Lemons, oranges, citrons, &c., are prepared in this way, and sold by the grocers for the purpose of increasing the flavour of puddings and sweetmeats.

298. The following is the wholesale price of this description of groceries, including the duty, to which, therefore, there is only the retailer's profit to be added to arrive at the proper retail prices:—

Dry Fruit (duty paid). Per cwt.

	£ s. d.		£ s. d.
Almonds—			
Jordan (duty 10s.)	7 0 0	to	10 0 0
Valentia, sweet	4 0 0	„	4 5 0
Barbary, sweet (in bond)...	2 17 0	„	2 18 0
Currants—			
Patras (duty 15s. and 5 per cent.)	2 10 0	„	4 15 0
Cephalonia and New Zante	2 15 0	„	5 6 0

	£	s.	d.		£	s.	d.
Figs—							
Turkey, pulled (duty 15s. and 5 per cent.)	2	6	0	,,	3	10	0
Prunes (duty 15s.)	1	9	0	,,	1	10	0
Raisins (duty 10s.)—							
Muscatels, layers	1	16	0	,,	4	0	0
Smyrna, red, new	2	6	0	,,	0	0	0
Ditto, black	1	5	0	,,	1	15	0
Sultana, new	3	0	0	,,	3	2	0
Valencia, new...	2	3	0	,,	2	5	0
Eleme, new	2	6	0	,,	2	12	0

CHAP. X.—VEGETABLES, CULTIVATED AND UNCULTIVATED.

299. General Remarks.—The Supply of these perishable commodities to the public, forms the regular employment of a large mass of people throughout the country. In our villages and small towns they are chiefly obtained from the gardens of the nhabitants; but in London, and all our populous cities and towns, a large district is set apart for their production, divided into "market gardens," as these fields are generally called. Thus, London is supplied from the surrounding country, nearly the whole of which appears to be well suited to garden culture; but some parts bearing peculiarly large crops of one kind of vegetable, they are specially devoted to its growth—as, Mortlake for asparagus, Deptford for onions, Battersea for lettuces and cabbages, &c. But in consequence of the increased facilities afforded by the railways, the large centres of consumption are not now confined to one particular circle, but receive their supplies from distant counties with great regularity, and even, by means of the steam-boats, from France and Belgium. Birmingham, also, which used to depend almost entirely upon the Vale of Evesham for its vegetables, is now able to compete with London in her own markets, as well as in the intermediate district. Fruit and vegetables are generally sold by the same parties, both in the wholesale market and the retail shops; though, in many cases, in London itself the trade is so subdivided that the wholesale dealer confines himself to one particular kind; and the retailer is either a greengrocer selling only vegetables, or a fruiterer dealing in fresh fruit alone. The great drawback to the trade is the perishable nature of its articles, all of which are soon rendered unsaleable by delay, and the supply of them must therefore be as nearly as possible proportioned to the demand. It appears extraordinary, when we consider the hundreds of thousands of tons of vegetables and fruits which are brought to market, that so little should be wasted; yet such

is the case, and the explanation is afforded by the fact, that the costermongers and small shopkeepers clear off and sell to the poorer classes on the following day those articles which are not sold to the higher classes on the first. It is supposed that more than 400,000 tons of vegetables are sold in London in the year, and 50,000 tons of British fruits, besides an enormous amount of oranges, lemons, pine-apples, &c., from abroad.

300. The Chief Markets in London for vegetables and fruit are those of Covent-garden, Portman, Farringdon, the Borough, and Spitalfields. The first of these nearly equals in amount all the others, and holds a wholesale market on the mornings of Tuesdays, Thursdays, and Saturdays, beginning as early as three or four o'clock; and on the intervening mornings, as well as after the wholesale market, being ready to accommodate those who require any quantity, however small, of vegetables or fruit. Here are sold all the choice, because out of season, vegetables and fruits, at extravagant prices, as well as the best qualities in season as they each come on. However difficult it may be elsewhere to obtain peas of fine flavour, or other niceties of the kitchen-garden, here it is only necessary to give the proper price and they are forthcoming. Portman market is yearly growing in importance, in consequence of the increased density of the neighbourhood around it, and its distance from Covent-garden, but has chiefly a retail trade in vegetables. Farringdon is a very poor market, and is scarcely more than an apology for one, this and the latter being chiefly supplied from Covent-garden. Spitalfields, on the other hand, is in great measure a centre of itself, supplied with foreign and inferior English vegetables brought by water and by the Eastern Counties' Railway. The Borough market resembles it in obtaining its supplies direct from the growers, but its frequenters are generally of a higher character, and demand a better article than those depending upon Spitalfields for their supplies.

301. The following list comprises the vegetables which are generally to be met with in their season, in the markets and shops throughout England,—1st, Vegetables for Boiling—as *potatoes*, *cabbages*, *cauliflowers*, *brocoli*, *onions*, *turnips*, *carrots*, *parsnips*, *pease*, *broad-beans*, *French-beans*, *vegetable-marrow*, *artichokes*, *asparagus*, *sea-kale* and *rhubarb*. 2nd, Salads—as, *radishes*, *lettuces*, *celery*, *endive*, *cucumbers*, *watercress*, *mustard-and-cress*. 3rd, Herbs, fresh and dried—as, *mint*, *thyme*, &c. Besides which may be enumerated, 4th, Vegetables found in a Wild State—as, *mushrooms*, *truffles*, &c.

Sect. 1.—Boiling Vegetables.

Potatoes.

302. Potatoes form the staple of the boiled vegetables of this country, being found upon the table of all classes at all seasons of the year. Originally they came from Virginia, but now they are completely naturalized throughout Europe, and form a chief part of the food of the lower orders in this country, as well as in Ireland, and to some extent in Scotland. The culture of the potato, and its varieties, will be found under the head of Gardening, and it is only necessary here to consider it under the three kinds in which it comes to market, namely, as *forced*, *new* or *early*, and *old* or *late potatoes*.

303. Starch is the substance which forms the largest part of the solid materials composing the potato, being, on the average, 15 or 16 per cent.; while the remaining albumen, mucilage, and woody matter, together, only compose about 12 per cent. Of the raw potato, therefore, rather more than one-quarter only is solid nutritive matter, whilst the whole of the remainder is water, and consequently perfectly useless in the shape of food. Thus, while bread consists of water to the extent of one-fourth or one-fifth of its weight (see paragraph 197), the raw potato, which is often substituted for it, has nearly three-fourths of its weight of water; and is, besides, almost entirely deficient in nitrogenized principles, so that it requires an extra supply of animal food, to be mixed with it, to that which will make oatmeal or wheaten-flour fit for the support of man.

304. Forced Potatoes are raised in hot-beds, under glass, and sold at such prices as to bring them above the reach of economical people, and as the quality is not good, but always more or less watery, there is no reason whatever for their introduction to the table, except their scarcity and consequent high price.

305. Early or New Potatoes are those which first develop their tubers in the open air. They are more or less watery or waxy, as compared with the ripe potato, and are not very digestible to a delicate stomach, but to a strong one they form an agreeable variety, and they are sufficiently easy of solution to make them available without injury. As they are dug up before they are ripe, they do not keep many days, but they are better for being exposed for twenty-four hours. Many of them are imported from Holland and Belgium, but even these reach the London market within twenty-four or thirty hours of their being dug, and they are consequently in a good state of preservation. When

first brought to market they sell for six times the price of the old potato; but by the end of June, they may generally be obtained for little, if any, more than the current rate of the produce of the last year.

306. The Old or Late Potato is the mature tuber, which is dug up after the stalks are dead, and stored for winter use. In consequence of the prevalence of the disease which has destroyed so many potatoes of late years, there is always a great doubt about this crop, and however abundant they may be in the autumn, it does not always follow that the supply will last through the winter. It is chiefly for this reason that it is very doubtful whether in the long run it is better to lay in a winter's stock of potatoes, when there is an opportunity for this, or to buy them "from hand to mouth." In all cases, whether in London or elsewhere, they are worth considerably less in the autumn than in the winter and spring; and for a very good reason, because a certain number always decay; and, in addition, because of the trouble and expense of storing them. Potatoes, when exposed to light and moisture, or to the latter only, throw out fibrous roots, and also leaf-stalks, and consequently lose substance and weight. Hence, it is necessary to exclude these agents by burying the potatoes underground, and protecting them from moisture by thatching, or otherwise covering in the heap, or else to deposit them in barrels in a dark and dry cellar, and cover them with perfectly dry sand. But, with every precaution, the potato will shoot out its radicles soon after Christmas; and it is seldom that more than two-thirds of the weight of potatoes buried in the autumn can be produced fit for the market in the spring. Very often one-third of sound potatoes is the residue, and in some cases where the disease is rife none are left, and the holder has nothing to pay for the trouble and expense incurred throughout the cultivation and storing of his stock, which he fancied worth a considerable sum. Besides these reasons for avoiding a winter's store, there is also the consideration, that when there is a large stock there is little or no check upon consumption. If the cook is obliged to come to her mistress for a weekly supply, the latter knows what is used, and can stop any extravagance as soon as it takes place; but on the other plan, she does not very often find out—until too late, that her servants have been using her potatoes at such a rate as to bring the stock to an end in February or March which she expected ought to have lasted till June. On the whole, therefore, where potatoes are bought, and unless a very careful supervision is exercised, I believe it to be more economical to buy them weekly than to lay in a supply for the winter;

though at the same time, in those years when they keep well, and with good opportunities for storing them, I am quite aware that they may often be obtained, including all expenses of storing and waste, at little more than half the price by retail. But taking the average loss by disease and other causes, I think the balance is in favour of the method here advocated.

Cabbages, Cauliflowers, and Brocoli.

307. Cabbages, Cauliflowers, and Brocoli come next to potatoes in point of general utility, the quantity consumed being enormous. From the large proportion of nitrogen which they contain, they are very useful in building up the muscular system, and they are therefore well fitted for those who take active exercise; but for delicate stomachs they are too strong, and produce flatulence and indigestion. The flowery parts of the cauliflower and brocoli are an exception to this rule, and they may generally be eaten with impunity by all but confirmed dyspeptics; but even in them the stalk is full of nitrogenized matter, and very liable to produce indigestion. *Summer cabbage* is very nourishing, and when well boiled tolerably digestible; it is a close-hearted cabbage, but it does not run to any great size. *Red cabbage* is grown for pickling only. *Savoy cabbage* is also close-hearted, but its leaves are very wrinkled, so that they do not lie upon each other like the ordinary sorts. They are in season all the winter, but are not considered tender till after the first frost. *Brussels sprouts* are the small secondary buds from a species of savoy, which are thrown out after the first heads have been cut, and they are largely used and highly prized by most classes in London, where they form a standing vegetable during the latter part of winter and the early spring. The *cauliflower* and *brocoli* are much alike, the chief difference to a casual observer being in the season during which each is prevalent. Some few cauliflowers come to a head in June, but the bulk of them do not reach perfection until July and August, and by September they become scarce. Brocoli, on the other hand, come into season after cauliflowers are at an end, and last throughout the winter, so that one or the other may be had from June till March. The *cow-cabbage* is now grown for the use of the poor of London, being in good condition throughout the winter, and sold at a very low price. It is, however, very rank in flavour, and only calculated for the strongest stomach, though full of nourishment. The *Scotch kales* and other kales, or curly greens, are in season during the winter, and serve to make a variety for those who are fond of

green vegetables. *Spinach* is used in the same way as greens, and is an excellent variety of this sort of vegetable, being in season during the spring and early winter.

Artichokes, Asparagus, and Sea-kale.

308. Artichokes, Asparagus, and Sea-kale form a group of delicacies which are only served to those who can afford to pay tolerably high prices for their vegetables. They are all very nourishing and digestible. *Artichokes* are of two kinds, separated from each other in the vegetable kingdom: one of them, the Jerusalem artichoke, resembles the sunflower and dahlia in its growth above ground, and produces tubers like the potatoe beneath the earth, which form the part used in cooking. They are sweet, nourishing, and mild, but the flavour is not universally admired. The *true artichoke*, the *asparagus*, and the *sea-kale* are eaten as delicacies; the two latter being considered peculiarly fitted for invalids. Sea-kale is always bleached under pots, and being an early vegetable, is prized on that account. Asparagus makes its appearance in the spring, and is generally cut as soon as it shows its head, which is a great mistake, as the bleached part is always hard and stringy, while the green head is tender and full of flavour. It is, therefore, becoming more the custom to wait till the head is well above ground before cutting it, and then not to carry the knife far beneath the earth, whereby also damage is often done to other shoots.

Rhubarb.

309. Rhubarb is cultivated largely, in a similar way to sea-kale, and forced in early spring under pots, for the sake of affording a material for puddings and tarts. It may, therefore, be considered rather as a fruit than a vegetable, which, however, it really is. The large giant-rhubarb is now a good deal out of favour, its place being supplied by a smaller pink variety, which is full of rich juice, and makes better tarts, &c. than its gigantic rival.

Carrots, Parsnips, and Turnips.

310. Carrots, Parsnips, and Turnips are all roots of a somewhat similar character, though differing in form and colour. The two first are stored for use during the winter, and are much valued as vegetables; as also is the last, but the variety of it suited to the table will not keep long out of the ground, and it is therefore not to be obtained from the time that the frost sets in until May, when the young turnips first

come in. *Turnip-tops* also form a valuable green dish, when gathered at the proper age, and in the early spring. Those grown later than May are strong and scarcely fit for food. *Beet-root* is grown in England for human food, but it is eaten cold, more as a salad than as a vege table.

Onions, Leeks, Chives, &c.

311. Onions may be considered as a seasoning, rather than as a vegetable, though sometimes stewed alone. They are grown to a great extent in this country, and also imported from abroad as *Portugal onions*, large, and free from strong flavour, and well calculated for stewing. *Young onions* are drawn for flavouring salads in the spring. The *leek* is closely allied to the onion, but has a small bulb, and is chiefly used for Irish stews, and by the Welsh in place of onions generally. *Garlic*, *chives*, and *shalots* are not extensively used in English cookery; but small quantities are sometimes introduced into made-dishes.

Peas, Beans, and Vegetable Marrow.

312. Peas, Beans, and Vegetable Marrow are seeds which are boiled in a green state, and used as vegetables, some without their pods, as the pea and broad-bean, and others with them, as the French-bean and vegetable marrow. They are all very nourishing, and some very digestible, as the marrow and French bean; but broad-beans are very strong food, and so are peas, except when young. French-beans, also, ought to be used when young, and are hard and stringy at a later period. There is a great difference in the sorts of peas sold in the market, some of them being only the common field-pea, devoid of fine flavour, hard and indigestible. Others grown in the garden, of good sorts, are full of rich meal and fine flavour, soft, and easily digested. The purchaser will therefore take care to deal with those only who will supply a pea of a good sort, and at the proper age. The white French-beans dried, called *haricots*, are used largely abroad, boiled and served as a vegetable; but they are not much liked in this country. Peas are, however, extensively used in a dry state for pease-soup and pease-pudding.

Sect. 2.—Salads.

Lettuce.

313. Lettuce forms the chief component part of the salads of this country throughout the spring and summer. There is a great variety

of lettuces now grown; but the two chief groups are the cabbage and the cos lettuce, the former coming into season in the early spring, the latter during the summer. The district round London is celebrated for its lettuces, and some are of a great size, and with a beautiful white heart and fine flavour. There is a considerable amount of anodyne power in them, which is sometimes useful when taken at night by bad sleepers. The lettuce is one of our most digestible salads, and very wholesome to those who are much confined to meat and bread, for whom it forms a useful change.

Endive.

314. The Endive is a winter plant, and therefore of use as a salad at that time, but not equal in flavour to the lettuce. It requires bleaching, by covering up with an earthen pot, or storing it in a dark cellar, before it is fit for eating, as in the unbleached state it is highly bitter to the taste.

Radishes.

315. Radishes are roots growing in two forms—the long and the turnip radish, much resembling the carrot and turnip in their form and composition; but containing a sharp and pungent fluid which renders them well fitted to stimulate the stomach to digest other food, and they are therefore used largely as an addition to it. They are wholesome to most people, though much too strong and indigestible for a weak stomach. *Horseradish* is a different plant altogether, and only used to be eaten with roast-beef and some other kinds of rich food. *Celery* is extensively eaten as a winter-salad in this country, and, in the absence of lettuce, is valuable as the most easily procured of all those which will bear our winters. It is also stewed and eaten as a vegetable. *Cucumbers* are forced in hot-beds for those who can afford the price at which they are sold in the early season, but towards the end of the summer large quantities are brought to market which are grown in the open air and sold at a very cheap rate. They are, however, rather an indigestible food to most people, especially when eaten in large quantities as a corrective for rich diet, as salmon, lamb, &c.

Watercress and Mustard-and-Cress.

316. Watercress and Mustard-and-Cress are especially wholesome when young and tender; but the first of them is sometimes very old

and tough before it is brought to market. Enormous quantities are grown near London, in beds supplied with water for the purpose, and richly furnished with decaying animal and vegetable matter fit for its nourishment. Cresses are all highly antiscorbutic, and though not very nourishing, yet they freshen the stomach, and in that way do great good to the whole system. Their use should be encouraged, particularly for children brought up in towns.

Sect. 3.—Herbs for Seasoning.

317. The vegetables composing this group are not eaten as a dish by themselves, but form parts of other dishes, in the shape of what is called seasoning, aided by some of those already alluded to, as onions, shalots, &c. It will only be necessary here to enumerate them as consisting of *parsley*, used also as a garnish; *fennel*, only for adding flavour to mackerel; *mint*, *sage*, and *thyme*; *marjoram*, sweet and knotted, and *basil*; also *capers*, *nasturtium*, *capsicums*, and *tomatoes*, which are grown to be used as a means of flavouring sauces when preserved in vinegar; and therefore to be considered rather as pickles than as herbs.

Sect. 4.—Vegetables Found in a Wild State.

Mushrooms.

318. Mushrooms are the most generally used of those few English vegetables which are met with in a wild state, and as there are several poisonous fungi very similar to them, it is important to ascertain the peculiarities by which they may be known. All the Fungi are very different in their modes of growth from the ordinary classes of vegetable substances, and also very much among themselves in size, form, colour, and consistence. Of these many are commonly called mushrooms, but the true edible mushroom (*Agaricus campestris*, Linn.) has distinctive features, which will presently be described. Fungi, in general, have a form more or less resembling a parasol, some are globular, others membranaceous, tuberous, or froth-like. They are found of all colours, except green, but the prevailing hue is a greyish white, or yellowish pink. Their consistence is fleshy, spongy, gelatinous, cork-like, or woody, but never herbaceous. They have neither leaves nor flowers, and in their anatomical structure they consist entirely of cells, either of a rounded or oblong shape. When arrived at maturity, they all present minute coloured globules, which are their buds, or reproductive organs, analogous to the seeds of other vege-

tables. These globules are found internally—as in the truffle and puff-ball, or covering the entire surface, or in laminæ on the under surface—as in the mushroom, or at the openings of tubes in furrows or capsules, or sometimes floating in mucilaginous matter. Between two and three thousand fungi are now described, grouped into nearly one hundred genera. Almost all fungi are rapid in their development, and in this respect exceed other vegetable substances. They delight in moist shady places, and grow on animal and vegetable bodies in a state of decomposition, some even being developed within the substance of living vegetables. All have a peculiar odour, by which they may be recognised, and their taste is generally insipid, but sometimes acrid, styptic, or caustic; or, again, as in the edible mushrooms, very agreeable to the palate. Many species have long been used for food in China, India, and Africa, and more recently on the continent of Europe, particularly in Italy, where they are consumed in very large quantities, and cultivated to an enormous extent, one layer succeeding another so as to afford a constant supply. Many fungi are exceedingly poisonous, producing nausea, vomiting, giddiness, convulsions, and sometimes death itself. If, therefore, it is suspected, from these symptoms, that a mistake has been made, it is better in all cases to give an emetic without loss of time, and thus eject the contents of the stomach. The Common Mushroom (*Agaricus campestris*) is found in rich open pastures, especially in those where horses have grazed in the previous year. It is distinguished from the poisonous kinds by having an upper smooth surface, whose cuticular covering readily peels off, leaving a fibrous substance beneath. This upper surface is white in the young mushroom, and more or less brownish in the full grown one. The under part is a radiating series of laminæ, which are pink in the young mushroom, and become light-brown, and afterwards dark-brown, as the mushroom becomes full-grown. The whole is supported upon a short and thick foot-stalk, varying in length from a quarter of an inch to two inches, or rather more. In shape the mushroom commences with a resemblance to a nodule of baker's dough, nearly round and smooth. This gradually expands below like the opening of a parasol, but more round and doughy, until it has spread out into the shape and size of a plate, frequently being eight or nine inches in diameter. This species is cultivated in our gardens by the use of what is called *mushroom spawn*, which is nothing more than rotten dung, and other similar matters compounded together, and kept for a year, until it has had time to develop the fungoid globules, when it is planted

in hot-beds, and in process of time the mushrooms make their appearance. They are, however, inferior in flavour to the wild sorts, and the only advantage in using the spawn consists in the early appearance of the mushrooms, and the avoidance of danger in the gathering of false fungi by mistake for the true ones. The large full-grown mushroom is used for making ketchup, the middle size for stewing or broiling, and the small ones, called "buttons," for pickling.

The Champignon.

319. The Champignon (*Agaricus pratensis*, Linn.) is very similar to the common mushroom of small size, in all respects except in the colour of the *laminæ*, which are cream-coloured instead of pink. They are, however, so very liable to be mistaken for the poisonous kinds of fungi popularly known as *toad-stools*, that they are seldom ventured upon in this country. They grow wild in dry upland pastures, especially in parks.

The Truffle.

320. The Truffle (*Tuber cibarium*) is remarkable for its peculiar mode of growth underground, at the distance of a few inches from the surface. When arrived at maturity it becomes gelatinous, and gradually dissolves away. There are several species, of which the common truffle only is eaten in this country, and is said to be found in some few situations in England, though not to any extent, those which are eaten being imported from abroad. In certain districts of the continent of Europe it is astonishingly abundant, as in Piedmont, and at Perigord in France, which latter place has acquired a great celebrity for producing them. They abound most in light and dry soils, especially in oak and chestnut-forests; but it would be difficult to procure them any where, if it were not that hogs are extremely fond of them, and lead to their discovery by rooting in the ground. Dogs also are taught to find them by the scent, and indicate their existence by scratching the ground, or, if allowed to do so, will actually dig them up. The season for collecting them lasts from October to January. The truffle is about the size of a hen's egg, entirely destitute of roots or fibrils; the skin blackish or grey, studded with small pyramidal warts; the flesh white grey, or blackish, varied with black or brown veins. They are dressed in various ways; but are

rather difficult of digestion, and should therefore be indulged in with moderation.

The Morel.

321. The Morel (*Phillus esculentus*) is another species of fungus, found in the fields and woods in the spring and early summer. It is of an egg-shape, hollow, and raised on a foot-stalk. The colour is yellowish brown; but, like the champignon, they are so liable to be mistaken for poisonous fungi, that it is dangerous to indulge in them without great care in their selection.

322. The Chemical Components of all the fungi are nearly the same, being remarkable for the amount of nitrogen which they contain. From this circumstance they are very valuable to the poor who are deficient in meat, milk, and other nitrogenized compounds.

323. Mushrooms and Truffles may be bought at the greengrocers, the former at a tolerably low rate, and the latter only at a price which places them out of the reach of the rigid economist. In the provinces mushrooms may generally be bought in the market, or from those who make it a business to gather them.

324. Several Marine Vegetable Substances are eaten in particular localities, but more as popular medicines than as articles of food. It is unnecessary, therefore, to allude to them further than by name—as, *sweet tangle*, *laver*, *badderlocks*, and *carragheen* or *pearl moss*, which last is confined to Ireland, and extensively used there in consumptive cases among the poorer classes.

325. The Common Nettle, which is universally met with, is really a very valuable kind of food when gathered at the proper age and boiled. In March and April they are young and tender, and should be cut before they show any flowers, as after this they are strong in flavour and stringy in texture. When boiled like spinach, or added to soup, they are a very agreeable addition to the ordinary fare, and far better than the inferior qualities of cabbage.

326. The Dandelion is used in France to a great extent as a salad, for which purpose its young leaves are cut and mixed with other plants, as sorrel, &c., and there is no doubt that they form a good alterative.

327. The Sorrel grows wild in all our meadows, but is almost wholly neglected in this country, being in fact a somewhat different plant to that which is so much prized in France. It is, however, equally useful as an antiscorbutic.

Sect. 5.—Seasonal Table for Vegetables.

328. The following table of seasons in which the commoner vegetables are generally to be met with in the shops of the greengrocer, will serve as a guide to the young housekeeper.

Vegetables.	When in season.
Artichokes, true	July to October.
Artichokes, Jerusalem	Winter and Spring.
Asparagus	February to June.
Beans, broad	June to August.
Beans, French	June to August.
Beans, scarlet runners	July to September.
Beet, red	All the year stored.
Brocoli	November to April.
Cabbage, summer	June to August.
Cabbage, winter	October and Nov.
Cabbage, red	July to September.
Kale, Scotch	December to Feb.
Kale, sea	January to March.
Carrots	May to March.
Cauliflowers	June to September.
Celery	October to February.
Cucumbers, forced	March to June.
Cucumbers, open air	July to September.
Endive	September to Dec.
Leeks	Autumnal months.
Lettuce	April to October.
Mushrooms	Spring and Autumn.
Mustard and Cress	Ditto.
Onions, young	May and June.
Onions, stored	August to October.
Parsnips	November to April.
Pease	June to September.
Potatoes, forced	March to May.
Potatoes, young	June and July.
Potatoes, for storing	August to October.
Radishes, long	April and May.
Radishes, turnip	June and July.
Spinach, spring	April to June.
Spinach, winter	November and Dec.
Tomatoes	August and Sept.
Turnips	May to July.
Turnip-tops	April and May.
Vegetable marrow	August and Sept.
Watercress	May to July.

CHAPTER XI.—FRESH FRUITS.

329. The Fruiterer is the tradesman who keeps for sale all kinds of fruits, in their several seasons; and as these are most of them

exceedingly liable to decomposition, he runs great risk of loss from over-stocking his shop. As, however, little capital is required for the retail trade, it is adopted by many on that account, who have a small command of the needful article, and hence these shops are so common in most towns of any size. Fruits may be practically divided, for marketing purposes, into, 1st, *those which are grown in the open air in Great Britain;* 2nd, *hot-house fruits;* and 3rd, *imported fruits.*

Sect. 1.—Fruits Grown in the Open Air.

330. To this class belong all the well-known tribe of *currants, gooseberries, raspberries, cranberries, barberries, mulberries, strawberries, grapes, plums, cherries, apricots, nectarines, peaches, apples, pears, quinces* and *medlars; walnuts, chestnuts, filberts,* and *hazel-nuts.* The British wild fruits, consisting of the *blackberry, whortleberry,* and *elderberry,* are seldom to be met with in the shops.

331. The Large Group of Fruits which are now naturalized in this country, and which all have the distinctive name of berries, are exceedingly wholesome in moderate quantities, and when used as alteratives rather than as regular articles of diet. In the grape, gooseberry, currant, elderberry, whortleberry, and cranberry, the seed is contained within a pouch, or skin, suspended in a mucilaginous fluid, and this skin, being thick, is always very indigestible, and should not be swallowed when it is of sufficient size to be excluded, as in the case of the grape and gooseberry. On the other hand, strawberries, raspberries, and mulberries have a fleshy interior, with a mammillated exterior, on which the seeds are placed. They all contain a mixture of vegetable acids, with more or less saccharine matter and mucilage, and they are useful as affording a slightly laxative and cooling food, which removes the ill effects consequent upon a too liberal use of nitrogenized compounds, as is too often practised in this country, where butcher's meat and wheaten bread form the staple of our ordinary diet. The gooseberry is eaten in puddings and tarts in an unripe state, in which there is no development of sugar; but the acid contained in it is very wholesome, and there can be no doubt that it is a very desirable article of food, when properly mixed or alternated with other materials. When eaten raw the proportion of acid is too great for the stomach, and the consequence is that spasms, with other forms of disturbance of the digestive organs, make their appearance. In all cases green gooseberries ought to be boiled or baked and mixed largely

with sugar before they are fit for food. Raspberries, strawberries, and mulberries are sweet enough when ripe; but barberries and cranberries require a liberal use of sugar to take off their excessive degree of acidity.

Stone-fruits.

332. The Stone-fruits are almost all of them unwholesome when eaten in any quantity, arising from the firmness of the substance of which they are composed. Plums are notoriously prone to produce diarrhœa, though there can be no doubt that this complaint is particularly prevalent at the plum-season, and therefore the concurrence of the two may be accidental, and the one not caused by the other. Peaches are wholesome enough, partly because they are seldom eaten in sufficient quantities to cause disturbance of the digestive organs. With regard to nectarines, they hold an intermediate place in point of wholesomeness: and apricots, when ripe, may perhaps be classed with them. In their green state they are made into tarts, and are tolerably digestible, but are not so much so as gooseberries or rhubarb. Cherries are certainly quite as indigestible as plums, and being chiefly eaten in their raw state, and often when quite unripe, they are on that account doubly dangerous.

Apples, Pears, Quinces, and Medlars.

333. Apples, pears, quinces, and medlars are the most wholesome fruits we have; the two first being generally cultivated, and brought to market in large quantities. They are met with in great variety, some of each sort being intended solely for the table, others for cider and perry, and a third kind for boiling, baking, and stewing. Quinces are only used for improving the flavour of apples in tarts and for making marmalade, as in their raw state they are not admired.

Nuts.

334. Nuts of all kinds are much relished by all classes, but they require the stomach of an ostrich or a pig to digest them, and should never be eaten in large quantities. I certainly have known a peck of filberts eaten with impunity at a sitting, but this is an exceptional case, and no one should presume to imitate such a bad example. Chestnuts, when roasted, become flowery, and are then perhaps wholesome enough; but all raw nuts are solid and full of oil, so as to defy the delicate stomach to soften and digest them.

335. Almost all the above-mentioned fruits are supplied to the fruiterers by the market-gardeners and others throughout England. Apples and pears are chiefly grown in the western apple district, comprising Devonshire and western parts of Somersetshire and Dorsetshire, and in the midland apple-growing district, including Herefordshire, Worcestershire, and a small section of Shropshire. In these two extensive tracts orchards are to be seen in all directions, and the growth of apples in a good season, or a "hit," as it is called, is of incalculable advantage to all classes, from the poor cottager who has only a few trees to the owner of acres of land bearing this kind of fruit. Pears are chiefly grown in the midland district, especially those producing perry.

336. In Selecting her fruit, the manager has chiefly to ascertain that it is in a proper condition as to ripeness and freshness, and that it is of a suitable sort. Thus, certain apples are excellent for boiling or baking, but quite unfit for the table, while others are exactly the reverse. If, therefore, she is ignorant of the various kinds, she had better rely upon her fruiterer, who will be sure to supply her with what she wants if she place the selection in his hands. With regard to gooseberries, there is also great room for choice, any of them serving for bottling or puddings in a green state, but the small hairy sort being those which are best suited to preserving. For the table, this fruit ought to be large and well-flavoured, to please the eye as well as the palate; none are better in this last respect than the old-fashioned red hairy gooseberry.

Sect. 2.—Hot-house Fruits.

337. In these expensive luxuries are inclined *pine-apples*, *grapes*, and *melons;* the two last being also grown in the open air. Grapes are remarkably wholesome, and are extensively used for invalids. Melons and pine-apples are quite the reverse, being less suited to a weak stomach than almost any other fruit; but from their cost in rearing they are placed beyond the reach of all but the luxurious, and therefore they need not be further alluded to here.

Sect. 3.—Foreign Fruits.

338. The Trade in this department is now a most extensive one, particularly in pine-apples, oranges, and lemons, which are imported into this country in enormous quantities. In the early stage of the West Indian trade, fifteen years ago, pine-apples were imported

without flavour or juice, and were scarcely better than turnips, but they are now almost equal to the produce of our hot-houses, and are a great luxury to those who are fond of the flavour, being even within the reach of the lower classes at a penny a slice, which is often the price in the streets. More than 200,000 are said to be imported per annum, and most of these are sold by retail at 1s. or 1s. 6d. a-piece. This is effected by the aid of clippers, which, as in the case of oranges, bring the fruit from shore to shore in one quarter the time which was formerly taken, the passage up the channel being hastened when necessary by steam-tugs sent out for that purpose. Incalculable quantities of oranges are thus brought from Spain, Portugal, the Azores, Madeira, and Malta; and though the number has been fixed at more than 300 millions, yet this is in a great measure guess-work, as there is only a duty on them per bushel. For this trade alone more than 200 vessels are constantly employed, bringing oranges, lemons, limes, citrons, and nuts during the winter and spring, and afterwards plums, cherries, grapes, apples, pears, chestnuts, &c., until the oranges come in again. In London, the trade is monopolised by a limited number of wholesale fruit-merchants in the neighbourhood of Thames-street, Botolph-lane, and Pudding-lane, where large warehouses receive the consignments, only to hand them over as rapidly as possible to the lesser dealers in this commodity. The choice kinds come to Southampton, and thus avoid the tedious navigation of the Thames—the transit by railway only occupying a single night; but the great bulk of the fruit is brought into the river, and at once transferred to the above-mentioned localities. Liverpool is also now a great centre of the foreign fruit-trade, supplying itself, and also the adjacent manufacturing districts, where very little fruit is grown, in consequence of the destructive nature of the smoke from the factories.

Oranges and Grapes.

339. The wholesomeness of Oranges and Grapes is too well known to need dilating upon, and the opposite nature of pine-apples has been already alluded to. Lemons are only used for medicinal purposes and for flavouring drinks of various kinds; but for this purpose they are exceedingly valuable. The foreign plums, apples, pears, &c., do not differ in this respect from their native representatives.

340. The Price of these foreign fruits varies greatly, according to the season and to the mode of purchase, whether by wholesale or

retail. By a reference to the accompanying list of wholesale prices, it will be seen that the gross profit is fully fifty per cent.; but from this must be deducted the loss by decay, and by the necessity for forcing a quick sale to avoid it, which leads to the selling of certain portions to the small street venders, whereby there is almost always a great sacrifice rendered necessary.

WHOLESALE PRICE OF FOREIGN FRUIT.

	£ s. d.		£ s. d.
Oranges—			
St. Michael, firsts, per large box	2 4 0	to	2 11 0
St. Michael, seconds ditto	1 9 0	,,	1 13 0
Terceira, per small box	0 15 0	,,	1 1 0
Lisbon and St. Ubes, per half-chest	1 9 0	,,	1 13 0
Sours, per chest	1 2 6	,,	1 5 0
Lemons—			
Messina, per case	0 16 0	,,	0 18 0
Ditto, per box	0 10 0	,,	0 12 0
Lisbon, per half-chest	0 18 0	,,	1 0 0
Malaga, ditto	1 0 0	,,	1 2 0
Citrons—			
Messina, in pickle, per pipe	11 0 0	,,	12 0 0
Madeira, ditto, ditto	12 0 0	,,	12 12 0
Lemon-juice, per gallon	0 2 6	,,	0 3 0
Nuts—			
Barcelona, per bag	2 0 0	,,	2 2 0
Spanish, per barrel of 3½ bushels	2 3 0	,,	2 4 0
Turkey, ditto	1 12 6	,,	0 0 0
Turkey filberts, ditto	1 12 6	,,	1 15 0
Chestnuts, Spanish, per barrel of 3½ bushel	1 0 6	,,	1 2 6
Walnuts, French, ditto	1 5 0	,,	1 7 6
Brazil, ditto	1 15 0	,,	2 0 0
Grapes—			
Almeria, per barrel	3 0 0	,,	3 5 0
Shell Almonds			
Faro, per cwt.	3 0 0	,,	3 2 6
French, ditto	2 15 0	,,	2 18 0
Elvas plums, per box	0 4 0	,,	0 6 0

SECT. 4.—SEASONAL TABLE OF FRUITS.

341. The following table shows the seasons of the year during which all the ordinary kinds of fruit are tolerably plentiful. They may often be obtained at other times, but only at extravagant prices.

Fruit.	When in season.
Apples, non-keepers	July to September.
Apples, keepers	October to May.
Apricots, green	May.
Apricots, ripe	July and August.
Cherries, eating	June and July.
Cherries, morella	September.

Fruit.	When in Season.
Currants	July and August.
Cranberries, fresh	September and October.
Ditto, imported	November to January.
Figs	September and October.
Filberts	September and October.
Gooseberries, green	June and July.
Gooseberries, ripe	August and September.
Grapes, forced	May to September.
Grapes, open air	September to November.
Grapes, foreign	November to May.
Hazel-nuts	September and October.
Lemons	All the year.
Medlars	November and December.
Melons, forced	July to September.
Melons, foreign	July to September.
Mulberries	September and October.
Nectarines	August to October.
Oranges	January to June.
Peaches	September and October.
Pears, non-keepers	September and October.
Pears, keepers	October to February.
Pine-apples, forced	June to August.
Ditto, foreign	November and December.
Plums	August and September.
Quinces	October and November.
Raspberries	July and August.
Strawberries	June and July.
Walnuts	September and October.
Ditto, pickling	July.

CHAPTER XII.—ITALIAN WAREHOUSE GOODS.

342. General Remarks.—The contents of the Italian warehouse are exceedingly miscellaneous, and can scarcely be arranged in any natural method, but must be examined in detail without much attempt at classification. Many articles sold at other shops in London are likewise kept at the Italian shops—as foreign hams and sausages, curry-powder, mustard, pepper, &c., the former of which are to be found at the provision dealer's, and the latter at the grocer's. But the description which most nearly accords with the contents of this shop is, that they are articles not solely of the nature of condiments, but still subsidiary to ordinary food, as *salad oil*, *olives*, *pickles*, *vinegar*, *anchovies*, *potted* and *preserved meats*, and *sauces*. These in the country are generally sold at the shops of the grocers, but in London at those which go by the name of Italian warehouses.

Sect. 1.—Olives and Salad Oil.

343. The Olive Tree is cultivated in Italy, Spain, and the south of France, partly for its unripe fruit, which are pickled and eaten as improvers of the taste for wine; and partly for the oil which is expressed from the ripe fruit, and which is of a very valuable nature for many purposes, and from its mild and tasteless qualities, it is extensively used in cooking and for making salad-mixtures.

344. The Fruit of the Olive is oval, with a smooth rind, and much resembles a small half-ripe plum. For the purposes of the dessert they are gathered when immature, and are then pickled in salt and water, and barrelled for exportation. The Italian olives are the best, then the French, and lastly the Spanish, which are not so well flavoured. The ripe fruit is gathered and gently pressed, by which the best quality of oil is procured, after which a stronger pressure is applied, so as to break the kernels and produce a more copious flow of inferior oil, but still of a quality sufficient for domestic use. The oil is allowed to rest and deposit its fecula in the shape of mucilage and earthy matter, and it is then drawn off. The best qualities are at once deposited in flasks of the shape peculiar to the article, and guarded with rushes; whilst the secondary sorts are sent over to this country in jars and barrels. Italian oil is always distinguished under the heads of Florence, Lucca, and Gallipoli; the first being considered the best.

345. Olives are very often unnaturally coloured with copper, and made to assume a bright green, whereas they ought to be of a dirty yellowish-green colour. This is the case also with a great number of the preserved fruits and pickles, and should be avoided in consequence of the injurious effects of the salts of copper. Olive oil is also adulterated with inferior oils, as poppy oil, &c.—not injurious in point of health. The price of olives is about 2s. to 3s. per small jar. Olive oil is retailed at 9s. to 12s. per gallon, and salad oil (reputed Florence) in flasks at 9d. to 1s. 6d. each.

Sect. 2.—Vinegar.

346. Vinegar is used in a great variety of ways in domestic economy, of which the chief are—1st, the direct flavouring of rich and greasy articles of food by means of its acid; and, 2nd, the preserving of vegetable and animal substances to be eaten without salt, in which state they are called pickles.

347. VINEGAR, as used in this way, is a compound of acetic acid and water, with a little colouring matter. It is produced in two ways —1st, by the addition of oxygen to alcohol in liquors in some of the numerous forms, as wine, cider, malt-liquor, fermented sugar and water, &c.; or, 2ndly, by the distillation of wood, the result of which is a kind of acetic acid, called *pyroligneous* from its origin. Diluted alcohol mixed with a little yeast, and exposed to the air, speedily absorbs oxygen, and becomes converted into vinegar; and the only difference in this article depends upon the kind of alcohol employed, the nature of the exposure to the air, and the temperature at which it is maintained. Hence the varieties of vinegar are considerable, and may be enumerated as *distilled vinegar*, *wine-vinegar*, *sugar-vinegar*, *ordinary malt-vinegar*, *malt-vinegar made by the quick process;* and, lastly, *wood-vinegar*.

348. DISTILLED VINEGAR is obtained from any of the above-mentioned vinegars by condensing their vapour in the ordinary way (see Spirits); it is perfectly colourless and extremely acid, and is pure acetic acid mixed with distilled water.

349. WINE-VINEGAR, which is the best flavoured of all, is made by placing in the bottom of a large cask a small quantity of ready-made vinegar, called the *mother*, which should occupy one-third of the cask. To this is added a portion of wine, and, at the intervals of eight days, other small portions, until the cask is two-thirds full, beyond which the admission of air would be prevented, and oxidation retarded. The temperature of the room is kept up to about 80 degrees of Fahrenheit, or as near to that as possible, and should never rise or fall more than 5 degrees. As soon as the wine is converted into vinegar, half the quantity contained in the cask—that is, a volume equal to that of the wine added—is drawn off, still leaving the cask one-third full of vinegar, to which the wine is gradually added as before, and afterwards drawn off as vinegar. White-wine vinegar thus made is imported from Bordeaux and Orleans, but the greater part of that sold as such is composed of some one of the other kinds enumerated above, which may be made at a much lower cost than this high-priced vinegar.

350. SUGAR-VINEGAR is made by the addition of yeast to weak syrup, and then allowing the fermented mixture to have access to the air, at a temperature of 75 degrees to 85 degrees Fahrenheit, by placing it in casks two-thirds full, with their bungholes open, and a hole bored at each end, near the top, as well. From eighteen to twenty-

four ounces of sugar are to be added to each gallon of boiling water, and when the liquid is cooled to 75 degrees add five ounces by measure of beer-yeast. Let this stand, and in two or three days rack off the clear liquid into a cask, which is not to be more than two-thirds full, and add one ounce of cream of tartar, and one ounce of crushed raisins to the above quantity. Then keep it for two or three months in a warm situation, at a temperature not lower than 70 degrees, and keep out the dust by pasting a piece of paper with holes pricked in it over the bunghole. By this method, however, at least three months will be required to produce vinegar, unless a portion of that fluid is used to commence with, as already described in the making of wine-vinegar.

351. Malt-vinegar is made by the ordinary process, much in the same way as sugar-vinegar. Dr. Ure directs as follows: "One boll of good barley-malt, properly crushed, is to be mashed with water at 160 degrees Fahrenheit. The first water should have that temperature, the second must be hotter than 160 degrees, and the third water for the extraction of all its soluble matter may be boiling hot. Upon the whole, not more than a hundred gallons of wort should be extracted. After the liquor has cooled to 75 degrees Fahrenheit, three or four gallons of beer-yeast are poured in, and well-mixed with a proper stirrer. In thirty-six or forty hours, according to the temperature of the air, and the fermenting quality of the wash, it is racked off into casks, which are laid upon their sides in the fermenting apartment of the vinegar works, which should be kept at a temperature of 70 degrees at least; in summer, partly by the heat of the sun; but in general, by the agency of proper stoves, as above described. The bunghole should be left open, and the casks should not be full, in order that the air may act over an extensive surface of the liquor. It would be proper to secure a free circulation of the air by boring a hole in each end of the cask, near its upper edge. As the liquor by evaporation would be generally a few degrees colder than the air of the apartment, a circulation of air would be established *in* at the bunghole and *out* by the end holes. By the ordinary methods three months are required to make this vinegar marketable, or fit for the manufacture of sugar of lead."

352. The Quick Process for Making Vinegar is dependent upon the fact, that as oxygen is necessary to the completion of acetification, this action may be hastened by continually offering a fresh supply to the fluid in the progress of its conversion. A patent was taken out

Fig. 84

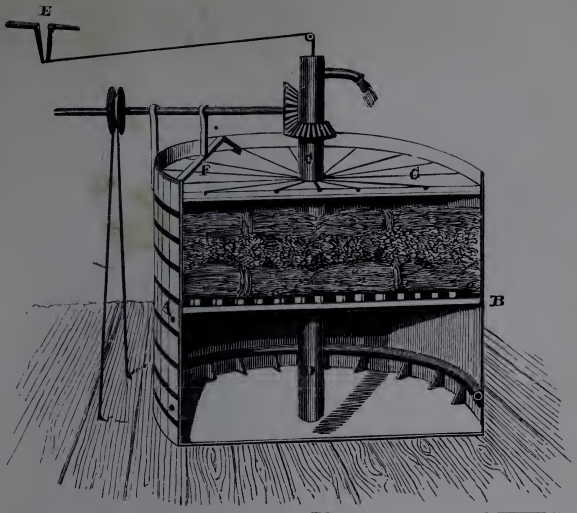


Fig. 85

Fig. 84.—APPARATUS FOR VINEGAR MAKING BY THE QUICK PROCESS.
„ 85.—SMALL STILL.

some years ago by a Mr. Ham, of Bristol, founded upon this principle, and it has, for some years, been acted on with great advantage by Messrs. Hill, Evans, & Co., of Worcester, whose make is justly celebrated for the strength of its acid and freedom from adulteration. In their vinegar manufactory the process is completed in twenty days, or sometimes even less, depending upon the proportion which the fluid bears to the acetifier in which it is placed. This machine is worked by steam, as are all the assistant parts of the apparatus, viz., the mash-tubs, boiling-coppers, &c. By the aid of malt and boiling-water, and at the usual temperature, an infusion is made as in brewing, which is also called wort, and to this a small quantity of yeast is added, after which it is pumped into the acetifier and worked constantly through it for the time required to absorb oxygen enough to convert the wort into vinegar. The following is a correct description of the acetifier, which, however, may be of any size suited to the wishes of the maker; but being a patented article, its use is forbidden to all those who would employ it for generating vinegar *for sale*. A vat (*fig.* 84, A B) is constructed in the usual way, of sound timber; and those now in Messrs. Hill & Co.'s works hold about 7000 or 8000 gallons. This vat is divided into two portions by an open partition, extending from A to B; the lower being for the reception of the wort, is heated by a coiled-tube of pure tin receiving a stream of hot water for that purpose; the upper contains a number of properly-prepared fagots of birch-twigs. Beyond this arrangement all that is necessary is to pump up the wort by means of a wooden pump (C D) of rude, but efficient, construction, which is lowered by a weight attached to its piston-rod, and raised by a cord attached to the crank (E), also worked by the engine. By means of this pump the wort is constantly being raised from the lower chamber of the vat and poured upon the fagots through an ordinary spout, and as the wort is withdrawn from the vat below, air is admitted to supply its place through several holes made in the sides just beneath the division (A B), and at other times driven out again by the descent of fresh quantities of wort, so that, in fact, a rude kind of respiration is established. But to render this apparatus still more efficient, the wort must be regularly sprinkled over the fagots, and not poured, as it would be from a spout; and this object is effected by arranging a flat disk of wood above the fagots and beneath the spout, with radiating grooves ending in small holes, arranged at various distances from the centre. This disk again (as shown at F G) is made to revolve by a cog-wheel, and in its revolution it spreads the wort, drop by drop, over

the fagots, and thus ensures a constant and steady, as well as uniform, supply of it to the whole mass of them, which again are furnished with fresh air by the action of the pump. After fifteen or twenty days the superintendent finds, on examination, that the wort has become vinegar, and then withdraws it as such, and supplies its place with a fresh quantity of new wort. The object is to avoid the loss of alcohol and vinegar by evaporation, and of money by the loss of time during which it is lying idle.

353. VINEGAR obtained from the distillation of wood is also called pyroligneous acid, which, when it first comes over, is mixed with several other products, as wood-naphtha, tar, &c., from which it is separated by the following method:—The wood generally employed is either oak or beech, either of which is subjected to destructive distillation at a red heat in an iron cylinder of large dimensions, to which a worm or condenser is attached: a sour, watery liquid, a quantity of tar, and much inflammable gas pass over, while charcoal of excellent quality remains in the retort. The acid liquid is subjected to distillation; the first portion being collected apart for the sake of the naphtha which it contains; the remainder is saturated with lime, concentrated by evaporation, and mixed with a solution of sulphate of soda; sulphate of lime is precipitated, while the acetic acid combines with the soda. The filtered solution, which is composed of the brown pyroligneous acid of the shops, is evaporated to the point at which it crystallizes; the crystals are then drained as much as possible from the dark, tarry, mother-liquor, and deprived by heat of their combined water. The dry salt is then cautiously fused, by which the last portions of tar are decomposed or expelled; it is then re-dissolved in water, and re-crystallized, the result being pure acetate of soda, which readily yields hydrated acetic acid by distillation, after the addition of sulphuric acid, the latter having a greater affinity for the soda, and therefore liberating the former.

354. SUCH ARE THE VARIOUS PROCESSES by which vinegar is made for the use of all classes. Of these, the white-wine vinegar from France is the best in flavour, when obtained in its natural purity. The vinegar of Hill, Evans, & Co., and that made by Hill and Underwood of Norwich, appear to be free from all adulteration; and the latter is a very strong vinegar also. Vinegars are made of six different strengths, numbered 16, 17, 18, 20, 22, and 24; but these do not always contain the same relative proportions of pure acetic acid, although the higher numbers are always stronger than the lower. No.

24 should contain about 5 per cent. of pure acetic acid, with a specific gravity of 1022.

355. VINEGAR IS ADULTERATED in various ways, as—1st, by inordinate dilution with water; 2nd, by the addition of sulphuric acid; 3rd, by the substitution of pyroligneous acid; and, 4th, by the use of burnt sugar as a colouring agent.

356. INORDINATE DILUTION WITH WATER is detected by any test which will discover the strength, or rather the weakness, of the vinegar in point of acidity; but this in practice is a difficult process, and only to be managed by an experienced chemical manipulator. In principle, it depends upon the quantity of carbonate of soda which a given volume of vinegar will neutralize; and as it is known that one atom of the recently-ignited carbonate of soda will saturate one atom of pure acetic acid, it follows that for every atom of soda so saturated by any amount of vinegar, there will be contained in it an atom of pure acetic acid, and upon this principle the trial is made.

357. SULPHURIC ACID is detected in vinegar by means of the chloride of barium, which has a greater affinity for sulphuric acid than for chlorine, and the new salt being insoluble, is precipitated, collected, and weighed. All vinegars, however, and especially those made with water containing much sulphate of lime, are more or less mixed with sulphuric acid in a state of combination—that is to say, in the condition of this sulphate—it is necessary therefore that the acid should be made out clearly to be free from sulphuric acid before the charge of adulteration can be brought; and this, again, requires the aid of an accomplished chemist.

358. THE VINEGAR CONTAINING PYROLIGNEOUS ACID cannot by any chemical means be detected from that made from malt, sugar, or wine; and therefore, though the substitution is supposed to be very commonly made, there is no proof of its existence, the slight smell of creasote being the only means of arriving at any conclusion.

359. From the examination made by Dr. Hassall and Dr. Letheby of twenty-eight samples of vinegar, it resulted that "*seven* of the samples were entirely free from sulphuric acid or oil of vitrol; *eighteen* were adulterated with that powerful and corrosive mineral acid, the amount of which was variable, and often very considerable—from 0.63, the lowest, to 6.02, the highest quantity in 1000 grains; that *two* of the samples contained it in very small quantity only; that in *three* samples it was present in considerable amount; that *six* contained it in very considerable amount; that in *seven* samples it was present

in immense quantity; that the *acetic acid* also varied very considerably in the different samples—the highest proportion being, in 1000 grains by measure, 56.66 grains, or 5.66 per cent., and the lowest 27.63, or only 2.76 per cent.; that in *eight* samples the acetic acid was present in amount over *five* per cent., which is above the standard strength; that in *twelve* samples the quantity exceeded *four* per cent.; that in *seven* it was over *three* per cent.; that in *one* the quantity of acetic acid present was so exceedingly small as to be under *three* per cent.—that is but little more than half the proper strength; that the vinegars which were ascertained to be *free* from sulphuric acid or oil of vitriol were those of the following makers:—Messrs. Hill, Evans, & Co., of Worcester; Messrs. Hill and Underwood, of Norwich; Messrs. Swann & Co., of Stourport; Messrs. Potts & Co., Bridge-street, Southwark; and Messrs. Kent and Sons, of Upton-on-Severn."

360. VINEGAR is retailed at the following prices:—

	s.	d.	
Genuine white-wine vinegar	3	6	per gallon.
Good English vinegar, of full strength	2	9	"
Strong pickling vinegar	2	0	"
Ordinary vinegar, as sold in the shops ... 1s. 2d. to	1	6	"

SECT. 3.—PICKLES.

361. A great variety of pickles are to be bought at the Italian warehouse, some being preserved in clear distilled vinegar, and generally on that account made to look of a bright green by artificial means, while others are mixed with turmeric and spices, and are therefore prepared with ordinary vinegar, without any consideration for colour. Portions of cauliflowers, gherkins, French beans, young onions, capsicums, &c., are first soaked in salt and water to get rid of any adventitious matters, and then are stored in distilled vinegar at a boiling temperature. The vinegar is either directed to be boiled in a copper vessel, or else verdigris, which is a salt of copper, is actually added to the mass, the consequence of which is, that a bright green colour is evolved, and that the pickles look of a most beautiful but unnatural hue. The process adopted by Dr. Hassall for the detection of this copper is the following:—"About three oz. of the green vegetables of each of the pickles, after having been sliced with a glass knife, were incinerated, care being taken to avoid every source of contamination; the ash having being pulverized, was treated with twenty drops of pure nitric acid; one oz. of distilled water, after the lapse of a short time, was

added, the solution filtered, and treated with excess of ammonia; if copper was present, the solution became more or less blue, according to the amount of the metal present." From the examination of twenty samples of pickles, bought at different shops in London, it resulted, according to the analysis of the *Lancet* Commissioner, "that the vinegar used for pickling is of a very weak description, the per centage of acetic acid ranging between 1.48 and 2.91. * * * * *Vinegar of good quality ought to contain from four to five per cent. of pure acetic acid.* That nineteen out of twenty of the vinegars submitted to analysis, poor as they were, yet owed a portion of their acidity to sulphuric acid, the amount of which varied in the different samples from 0.38 to 2.52 in the 1000 grains; *the largest quantity of this acid being detected in the vinegars in which the red cabbages were pickled.* That in the whole of the sixteen pickles analyzed for copper, that poisonous metal was discovered in various amounts; *two* of the samples contained a small quantity; *eight*, rather much; *one*, a considerable quantity; *three*, a very considerable quantity; in *one*, copper was found in a highly deleterious amount; and in *two* in poisonous amounts. It will be observed that the pickles which contained the largest quantity of copper are those which consist entirely of green vegetables, as gherkins and beans." To such an amount is this adulteration by means of copper sometimes carried, that a bright iron rod dipped in the vinegar in which the vegetables are immersed, speedily becomes coated with copper. For this test half an ounce of the vinegar is sufficient, in which a piece of iron wire should be immersed for three or four hours, and if copper to any serious amount is present, it will be deposited on the iron to such an extent as to give it the appearance of copper instead of iron. Any one may readily try this experiment for themselves, and test their pickles by it.

362. The Vegetables of which the pickles are made, are partly collected in Great Britain and partly imported from abroad, being in either case stored in salt and water until the pickle-makers require them for use, when they are immersed in the vinegar, and are at once ready for sale.

363. Mixed Pickles, consisting of all kinds of vegetables thus preserved are the favourites with the public, and sell usually at from 9d. to 1s. 3d. per bottle, containing about twelve ounces. Real *Indian pickle* is much more hot than English pickles, and is sold at nearly treble the price; pickalilli being a British imitation of this, and sold at the same price as ordinary English pickles.

Sect. 4.—Anchovies and Sardines.

364. The above fish are sold by the Italian warehouseman, and not by the fishmonger, inasmuch as they are not natives of Great Britain or its seas. They are therefore included in the present section, rather than with that on "Fish."

365. Genuine Anchovies are largely imported into this country, preserved in brine; but they are said to be sometimes personated by sprats and sardines, though in the examination made by Dr. Hassall of twenty-eight samples, none contained any other fish than anchovies. His only cause for complaint was for the use of inferior qualities of fish, and the introduction of large quantities of colouring matter, usually Armenian bole. Now, it appears that there are four varieties of the anchovy—viz., 1st, the Gorgona; 2nd, the French; 3rd, the Sicilian; and 4th, the Dutch; their value being in accordance with their position in the above list. Of these twenty-eight samples one-third only contained Gorgona anchovies, although in almost all cases the bottles are thus labelled; seven were composed of Dutch fish only; and two of Dutch and real anchovies. But in twenty-three of the samples the brine was charged with either Armenian bole or Venetian red, the quantity varying considerably in amount, and in most cases the brine was saturated with these earthy powders to such an extent that they might be obtained and collected from the bottom of the bottles almost by tea-spoonfuls. Dr. Hassall remarks, that the Dutch fish may be distinguished from the true anchovy by its being invariably deprived of its scales, by its large size, white flesh, general coarseness, and by the very evident scale-marks which extend over the whole surface. "The practice," he observes, "of imparting an unnatural red colour to the fish and brine, by means of Venetian red and Armenian bole, is in the highest degree reprehensible. To saturate an article of food with large quantities of earthy colouring matters, is objectionable on the score of cleanliness; it is equally so as regards health, for this earth contains a large quantity of iron. Now, this medicine is not suited to all cases, and it may even sometimes be productive of mischief; at all events, when it is desirable to take iron, we should prefer that it be prescribed under the advice of a physician, and not administered in an article of food by our grocer, fishmonger, or Italian warehouseman. Again, it is not an uncommon thing for Venetian red to contain a large quantity of red-lead; and although in the analysis we have made we are happy to state that we have not detected that poisonous metallic

oxide in a single sample, yet there is no question but that red-lead is occasionally to be found in bottled anchovies." The object of using these earths appears to be to conceal the dirty look of the brine, which cannot be kept clear from the small particles of the fish, scales, &c., and from impurities in the coarse salt used.

366. Anchovies are generally sold in small bottles with the brine, and often, in addition, the above-mentioned red earth. It is to be hoped the dealers will see the necessity for avoiding this contamination; but at present it is almost impossible to procure them in an undefiled state. The price varies from 6d. a small bottle, containing about 6 oz., to double that price; 2s. 6d. being the general price for a jar or bottle containing about 12 oz.

367. Sardines are sometimes imported in brine, but in almost all cases now they are preserved in oil, in small tin cases holding from half-a-pound to a pound, and containing in each on the average about twelve or twenty-four fish respectively, at 1s. and 2s. the case. They are a very wholesome and agreeable addition to the breakfast, luncheon, or supper table, and in great request.

Sect. 5.—Potted and Preserved Meats.

368. These Articles have been already alluded to at page 32, where they are entered as part of the stock of the provision-dealer. They are, however, chiefly retailed by the Italian warehouseman in London or by the grocer in the country. Turtle-soup, invalid-turtle, venison, game, poultry, beef, veal, ham, shrimps, prawns, herrings, salmon, and many other articles are thus preserved, merely by boiling and the exclusion of the atmospheric air; and they are sold at prices equal to about the average value of each article, excepting turtle, which may be thus purchased at less than half the pastrycook's price.

Sub-sect. 6.—Sauces and Curry-powder.

369. At every Italian warehouseman's in London, and at each grocer's and druggist's shop in the country, some one particular sauce is put forth as the best in the world for all purposes. At the bottom or foundation of all these is vinegar, with the addition of spices, and sometimes of the juices of vegetables, making the sauces thicker than vinegar. Such is the celebrated Worcestershire Sauce of Lea and Perrins, which is made from a receipt of the late Lord Coventry, and which is an excellent and wholesome addition to most articles requiring it. Of the same nature, also, are Soyer's Relish, and his Sauce Suc-

culente; also the King of Oude's Sauce, the Reading Sauce, Harvey's Fish Sauce, and others too numerous to mention. It is quite true that a "good appetite is the best sauce;" but when there is a deficiency in this respect, or when the stomach is at all weak, a wholesome sauce will often enable it to digest food which would otherwise nauseate it; but it should not be used as a provocative to the appetite, but rather as an aid to digestion. The following articles are used by the various sauce-makers to compound their sauces, some using one receipt and some another, with varying proportions:—Anchovies, tomato, garlic, shalot, mushroom, oyster, and walnut ketchup; sorrel, raisins, tamarinds, and figs; fænugreek, coriander, carraway, and cumin seeds; soy (Indian and British made), and a variety of herbs and spices already described.

Indian Soy.

370. Indian Soy is imported from China, and is a thick treacly-looking fluid, with a sweetish taste, but with a slightly-pronounced flavour peculiar to itself. It is supposed to be made from the seeds of the *Dolichos soya*. The British imitation is made by boiling the seeds of the above plant in water till they become soft; then add an equal weight of bruised wheat, and keep the mixture in a warm place for twenty-four hours. To this add a quantity of water equal to both, and salt to the same weight as each; put the whole into a stone jar, and cork it up for two or three months; then press out the liquor, which resembles Indian soy, but is not quite equal to it.

Anchovy Sauce.

371. Anchovy sauce is made by pounding genuine anchovies in water, and simmering the mixture for a short time, after which a little cayenne pepper is to be added, and the whole strained through a hair-sieve, by rubbing with the hand or a spoon. If the anchovies are genuine, the sauce will be good; if otherwise, it will be deficient in the proper flavour.

Tomato Sauce.

372. Tomato sauce, according to a very good receipt, should always be prepared as follows:—Bruised tomatoes, one gallon; salt, eight oz. —mix; and after three days, squeeze out the juice, to each half-gallon of which add shalots, four oz.; black pepper, two drachms; boil for half-an-hour, strain, and add mace, allspice, ginger, and nutmeg, of

each half-an-ounce; coriander seeds and cochineal, of each two drachms. Simmer gently for half-an-hour, strain, and when cold bottle it.

373. Adulterations to a great extent are also practised in these sauces, but apparently not of a deleterious character, no metallic salt having been detected by Dr. Hassall, and the colouring matter being chiefly Armenian bole or cochineal.

374. The Price of most of these sauces is from 1s. to 1s. 6d. per bottle.

Curry-powder.

375. Curry-powder is commonly sold in the Italian shops, but also by grocers, especially in the provinces. It is largely consumed by all but the poorest classes, who do not seem to have acquired the taste for curries. It is a mixture of spices with turmeric, and its use has been imported from the East, where it forms a kind of national dish. Curry-powder, of a good quality, is made of turmeric, black-pepper, coriander seeds, cayenne, fænugreek, cardamoms, cumin seed, cinnamon, ginger, allspice, cloves, and tamarinds, or at all events, of the greater number of these articles, some receipts omitting one or two, and others even more than that number. Most of these spices have already been described under their respective heads, and the remainder are not of sufficient importance to require a more particular reference here. Coriander seed, which forms the chief ingredient in all, is a warm carminative, full of essential oil, and very wholesome.

376. The Adulteration of Curry-powder is extensively carried on, seven only out of twenty-six samples examined by Dr. Hassall proving to be free from spurious mixture with some one or other of the following articles—viz., red-lead, starch, ground rice, and salt. The first of these, highly poisonous as it is, was detected in eight instances, or nearly in one-third of the whole number; and as the quantity of curry-powder taken at a meal is considerable, a large amount of this noxious metallic salt finds its way into the system. The remedy is simple enough, as the powder is easily made at home, and only requires the ordinary kitchen-mortar for its proper mixture.

377. The Price of Curry-powder, as sold in the shops, is from 9d. to 1s. per ounce, whereas the materials will not cost more than a quarter or one-third of the lower of these amounts.

CHAPTER XIII.—CONFECTIONERY AND PASTRY.

SECT. 1.—CONFECTIONERY.

378. IN FORMER DAYS our grandmothers were accustomed to make all sorts of good things, under the above name, for their children, grandchildren, and nephews and nieces, but in the present day we have followed the example of the French, and encouraged the establishment in every little town of shops where all sorts of sweets are sold for the benefit or injury, as the case may be, of all ages of her Majesty's subjects. Children are not the only ones who have a taste for these commodities, and grown people may always be found who rival their young friends in the appetite for "kisses," "rock," or "candy." These modern articles are sold at so low a price that it is almost impossible to make them at home without a loss, by comparison, and, therefore, few people like to undertake the trouble, but prefer dealing at the nearest "sweet-shop." Unfortunately, however, it happens that the makers of these articles are very careless in the materials which they employ, and especially in the colouring matters, a large proportion of which, as used by them, are of the most deleterious nature. Whoever, therefore, purchases those pretty-looking articles which tempt the eye in every street with their imitations of all things under the sun, must run the risk of either giving or taking a great quantity of arsenite of copper, chromate of lead, sulphuret of arsenic, iodide of lead, red-lead, bisulphuret of mercury, carbonate of copper, acetate of copper, white-lead, Prussian-blue or indigo, or other pigments, to say nothing of the factitious flavour with which they are impregnated. All these have been found by Dr. Hassall, Dr. Letheby, and other chemical authorities, in sweets purchased in London, and at the most respectable shops, too; so that it is reasonable to suppose that this shameful use of poisonous matters is extensively practised. It is not less lamentable than surprising that such a trade should be allowed by the legislature; but, while it is in existence, it behoves the mistresses of families to exercise that control over their charges which the Government neglects to undertake. None of these articles are necessary; and whatever may be wanted for the dessert may always be obtained at the most respectable shops with a guarantee of freedom from all deleterious matters; but the safest plan is to avoid every thing with an *opaque* colour, the transparent ones being almost always vegetable infusions, or cochineal, an insect: these are more or less

innocent, and act without any perceptible effect upon the animal economy. The coloured ornaments on cakes should never be eaten; but this is pretty generally understood, and they are not even made pleasant to the taste, so that here there is some excuse for the confectioners. One hundred and one samples of all kinds of coloured confectionery were carefully examined by the *Lancet* Commissioners, and with the following results:—Of the yellow colours employed, *seven* were coloured with lemon chrome; *five* with orange chrome, both being composed of chromate of lead; *forty-seven* with another shade of the same salt; and *eleven* were coloured with gamboge. Of the red colours, *sixty-one* were composed of organic pink colouring matters, consisting in most cases of cochineal; *twelve* were made from red lead, red oxide of lead, or minium; whilst in *six* cases the colouring ingredient was vermilion, cinnabar, or bisulphuret of mercury. Of the browns, *eight* were brown ferruginous earths, and therefore comparatively innocent. The blues were as follows: *one* was coloured with indigo; *eleven* were coloured with Prussian blue, or ferrocyanide of iron; the other *eleven* were coloured with Antwerp blue, which is a modification of Prussian blue. Fifteen samples consisted of German, or artificial ultramarine. Of the greens, *ten* were coloured with Brunswick green, consisting of chromate of lead and Prussian blue in different proportions; *one* was coloured with verditer, or carbonate of copper; *nine* were coloured with Scheele's green, emerald green, or arsenite of copper; and in many cases three, four, five or six of these colours occurred in the same parcel of confectionery, including three or even four poisons. This list is a sad one, and it is the more distressing, because it appears that in all cases an innocent pigment may be substituted for the above poisons. A list of these is given at length in Dr. Hassall's most valuable book, at page 619, to which the reader is referred for full information on this subject, so important to all those who have any thing to do with children. In France, a report has been drawn up at the instigation of the police on this subject, and an ordinance was issued some years ago prohibiting the use of all deleterious colouring matters, and not only giving a list of the forbidden articles, but also one of those which might be safely substituted. To ensure the carrying out of this edict, penalties were ordered to be laid upon those who refused to comply with its provisions, and every parcel of the confectionery was required to have the name and address of the vender stamped upon it. This regulation is also adopted in Belgium and Switzerland. The safest

plan is the easiest, namely, to avoid such articles altogether; but as children will indulge their appetite for such things, it surely ought to be provided that there should be a penalty for furnishing them with poison in the shape of tempting articles such as these. Many cases have occurred in which death has very nearly taken place from partaking of these poisons; and though I believe the makers are now rendered more cautious than they were, by the exposure in the *Lancet* and elsewhere, yet there is no reason to suppose that they have entirely abandoned the practice.

379. White or Transparent Confectionery, as sugar plums, lemon drops, &c., do not appear to be wholly free from risk, though comparatively innocent. The former have been found to contain white lead; the latter are sometimes adulterated with sulphuric acid. The hydrated sulphate of lime is generally added to white ornaments not intended to be eaten, together with wheat-flour, potato-flour, or arrow-root; but these are all innocent as compared with the ingredients of coloured confectionery, and are not worth notice, except perhaps to avoid them.

Sect. 2.—Pastry.

380. Pastry is seldom purchased for domestic use, excepting on special occasions, when social duties call for some extraordinary display. In such circumstances it often happens that it is cheaper and better to obtain what is wanted from the pastrycook at an advanced price, than to hire a cook for the occasion, who would perhaps turn every thing "topsy-turvy." Hence it is that this kind of pastry is also patronized by some good managers on occasions less marked than those above alluded to, as they think that the trifling loss by the increase of price is more than counterbalanced by the absence of fresh servants in the kitchen. Of course this plan is only to be encouraged where the mistress is incapable from any cause of attending to these *minutiæ* herself, and where she is not able to afford a cook who is a pastrycook herself. When neither of these causes exists, home-made pastry will always be found not only more economical, but also more wholesome than that bought at the shops, where inferior butter and preserves are often made by art to assume the appearance of first-rate articles; but, nevertheless, the stomach discovers the imposture, and its owner is sure to be made to pay the penalty.

CHAPTER XIV.

PURCHASED BEVERAGES.

381. General Remarks.—Drinks, as sold to the public, consist of two principal varieties—1st, those which are fermented; and, 2nd, unfermented liquids, as soda-water, ginger-beer, and lemonade.

382. Fermented Drinks are comprised under the three heads of—1st, *malt liquors;* 2nd, *cider* and *perry*; and, 3rd, *wine* and *spirits.*

383. Fermentation is the process by which saccharine matter or starch is converted into alcohol. The explanation of this process, propounded by Liebig, though purely hypothetical, is very generally believed to be a true one—at all events, it is accepted for want of a better and clearer explanation of what is after all perfectly unintelligible. It has long been known that one of the most indispensable conditions of fermentation is the presence in the fermenting liquid of some azotized substance, whose decomposition proceeds simultaneously with that of the body undergoing the change. This substance is called a *ferment*, of which there are several, all being composed of albumen in some shape, which in a moist state has a natural tendency to putrify and decompose spontaneously. Liebig imagines, therefore, that when these substances in the act of undergoing change are brought into contact with neutral ternary compounds of small stability, such as sugar, the molecular disturbance of the one body (the ferment) already in a state of decomposition is, as it were, propagated to the others, and this brings about a destruction of the equilibrium previously existing. But, leaving theory out of the question, it is certain that decomposing azotized bodies (ferments) not only possess energetic powers of exciting fermentation, but that the *kind* set up is mainly dependent on the stage of decomposition in the ferment itself.

384. Alcoholic or Vinous Fermentation is the result of the action of an azotized ferment on any saccharine solution. Pure sugar dissolved in water, and kept in an open or closed vessel, remains unchanged for any length of time, but on the addition of any putrescible azotized matter, in the proper stage of decay, the sugar is converted into alcohol, accompanied by an escape of carbonic acid gas. Blood, or white of eggs, or flour paste, when putrid, will all effect this change; but by far the most potent alcoholic ferment is *yeast*, which is the insoluble yellowish viscid matter deposited from

beer in a state of fermentation. Wine, beer, &c., owe their intoxicating properties to the alcohol which they contain, the proportion of which in them to the watery particles varies greatly. Port, sherry, and some other strong wines, contain from 19 to 25 per cent., while in the lighter wines of France and Germany, it sometimes falls as low as 12 per cent. Strong ale contains about 10 per cent.; and ordinary spirits, 40 to 50 per cent. In making wine from the grape, the expressed juice is simply set aside in large vats, when it undergoes spontaneously the necessary change. The vegetable albumen of the juice, which is an azotized compound, absorbs oxygen from the air, runs into decomposition, and in that state becomes a ferment to the sugar, which is gradually converted into alcohol. If the sugar be in excess, and the azotized matter definite, the resulting wine remains sweet; but if, on the other hand, the proportion of sugar be small, and that of albumen large, a dry wine is produced. Vinous or alcoholic fermentation has always a tendency to go on to the acetic, and in course of time all alcoholic compounds, not being pure alcohol and water, have a natural tendency to assume the acetic fermentation, and hence, all wines turn sour with age. *See* VINEGAR, page 149.

385. ALCOHOLIC DRINKS are all stimulant to the whole system, in proportion to the amount of alcohol contained in them; but many of them are cordial and stomachic also, depending upon the essential oil, or upon the extractive matters dissolved in the liquid. The properties of the several fermented liquors are much affected by these substances held in solution and not converted into alcohol; and in some liquids, as beer, porter, &c., they preponderate greatly, and afford considerable nourishment to the body as well as a mere temporary stimulus to the nervous system and circulation. Hence, their temperate use has always been encouraged, except by those who think it better that all should be deprived of a useful friend than that any should be allowed to make their friends into enemies. Intoxication, however, is a fearful vice; and when we see it carried to the extent which it is, it can scarcely occasion surprise that benevolent men should be anxious to put a stop to this habit by any means, however stringent.

SECT. 1.—MALT LIQUORS.

386. Malt liquors, as sold to the public, comprehend a considerable variety of articles, all, however, made, or professing to be made, of malt and hops, together with sugar in some cases. The division is founded primarily upon the colour of the malt, which is either high-

dried or pale—the former being used in brewing *stout* and *porter*, while the latter enters into the composition of *ale* and *beer*, in all their multifarious forms known as *Burton ale*, *Scotch ale*, *Kennett ale*, *pale ale*, *bitter beer*, *India pale ale*, and last and least, *table-ale* and *table-beer*, sometimes called *small-beer*.

387. THE MATERIALS allowed by law for the brewing of malt liquors for sale consist of *malt*, *hops*, *sugar*, and *water* only, with *isinglass* to refine it; to which, it appears, are surreptitiously added by the retailers, in many cases, *salt*, *tobacco*, *treacle* or *liquorice*, *cocculus indicus*, *capsicum*, *sulphate of iron*, and *quassia*, or other cheap bitters, together with certain spices for the purpose of aiding to the flavour.

MALT.

388. Malt consists of grain in which the starch has been converted into sugar by permitting the germinating process to go on to a certain point, and then putting an end to it by heat. It may be made from barley, wheat, oats, rye, or maize; but the first of these is almost always selected for the purpose. The operation of malting is conducted by steeping the barley in water until the grains become swollen and soft, and then piling it in a heap called a *couch*, to favour the development of heat caused by the absorption of oxygen from the air. After this the grain is spread more or less according to the weather, so as to keep the heat at the proper standard throughout (*flooring*). During this process the barley throws out a rootlet and a germ, and at the same time the peculiar chemical substance called *diastase* is developed, which has the property of converting starch into dextrin, and afterwards into grape-sugar. When the germination has proceeded far enough, the vitality of the seed is destroyed by kiln-drying, and according to the heat employed the malt will be *pale*, *amber*, or *brown*, or, in some cases, *black*. In malt of these different shades, the saccharine matter is found to be in the greatest perfection in the pale malt, which consequently produces the strongest and best beer; amber malt being only slightly scorched, its sugar is very nearly as well developed as in the pale; but in brown malt the scorching has proceeded so far as to diminish the sweetness considerably, and in the black variety it is lost in the bitter taste of the caramel, into which the sugar is converted. In its conversion into malt, barley loses *weight*, but gains in *bulk*; so that 100 lbs. of barley produce but 92 lbs. of malt, while 100 bushels of the former are converted into 108 bushels of malt. The quantity of malt annually made in the united kingdom,

which is almost entirely consumed at home, amounts on the average to nearly forty millions of bushels, or about $1\frac{1}{4}$ bushel per head per year, which will give about 25 gallons of beer, of average strength, to each individual; and as a large proportion are young children or invalids, and another large class never indulge in this kind of drink, the actual amount left for those who do indulge in it is very considerable. In London the proportion is still greater, for it appears that fifteen public brewers consume about five millions of bushels per year, or about two bushels per head for the whole population of the city and suburbs, independently of the numerous class of small brewers scattered throughout the suburbs. The process of malting is strictly supervised by the excise.

389. In Selecting Malt, the grains should be large, with a full, round, plump body, and no appearance of shrivelling; the skin should be thin, and on breaking the grain, which should be readily effected, they should be full of flavour, of a mellow, sweet taste, without rawness. If the broken surface be drawn across a board, it should leave a mark resembling that made by cream-coloured chalk. When there is an admixture of barley, it will sink in water, whereas the malt will invariably swim, if properly made. Sometimes part of each grain only is converted into malt, and then the one end sinks under the water, and the other swims; but, in trying this experiment, the malt must be unbroken. Good malt should have no admixture of roots or dust, and all its individual grains should be of equal size, taste, colour, and texture, or very nearly so. It is generally ground in a coarse degree a day or two before brewing, and it should weigh from forty lbs. to forty-three lbs. per bushel.

390. The Price of Malt has for some years fluctuated between 7s. and 9s. 6d. per bushel; but as the duty is now reduced, it is to be hoped that the price will undergo a proportionate reduction.

Hops.

391. Hops are the flowers of the hop plant, which is extensively cultivated in Kent, Sussex, Worcestershire, and Herefordshire, as well as in Belgium and the United States, from which countries they are now imported, when bad seasons raise the price high enough in England to warrant the venture. A particularly rich and loamy clay is required for the successful growth of this plant, which also demands enormous supplies of animal manure in a highly concentrated form,

as fish, woollen rags, night-soil, and other highly-nitrogenized products. With all the care in the world, and under the most favourable circumstances, hops are a very uncertain crop, so that the growers and dealers are induced to gamble and speculate in them to the same extent as the members of the Stock Exchange and their clients, or the supporters of the turf. In defence of this practice, which is confined to this crop among the agriculturists, they allege that betting is induced by a desire to diminish the risk incurred; and I fully believe that this is to a certain extent correct. The betting is always on or against a certain amount of duty, which is high or low, according to the crop; and thus the large holder or grower of hops is induced to back a low amount of duty, so that if the general crop turns out large, and he gets in consequence a low price, he will at the same time receive the bet which he has laid. If, on the contrary, a farmer has, or is likely to have, a bad crop, he backs a high duty, hoping to retrieve his own bad growth by receiving the amount of his bet. Sometimes, however, the grower loses both ways; but this cannot apply to the holders of hops in warehouse, who are the chief promoters of this kind of speculation, and who almost invariably guard against loss in this way. The Sussex and Mid-Kent hops are the strongest and most highly-flavoured; while the Worcestershire hops, including those of Herefordshire, which are all classed as such, are of more delicate flavour, peculiarly adapted for the brewing of the pale ale so much in fashion at present. Hops are gathered by hand in September and the early part of October, and rapidly kiln-dried; after which they are closely packed in "pockets" or "bags," and become a solid mass, of a bright or greenish yellow colour, with a fine dust permeating it, in which the principal flavouring matter resides. When rubbed in the hand they feel sticky, and leave a yellow powdery stain, with a powerful and peculiar odour.

392. In Selecting Hops, much depends upon the use for which they are intended. If for pale ale or table-beer, new hops of a pale yellow colour and mild, but fine flavour, should be chosen; and for strong ales, porter, or stout, the strongest and most aromatic hops of the south district are to be preferred; but here, also, new hops are always more profitable than old ones. Hops one year old have not lost much of their strength; but after that age, every successive year takes away from the flavour and strength: after three or four years the hop is comparatively worthless.

393. The Active Principle of the Hop resides in a bitter resinous matter, denominated *lupulin*, and also in an essential oil, both of

which appear to act on the nervous system of the human being, and also upon the beer itself by preventing decomposition.

394. Hops are sold at all prices, from £4 10s. to £15, or even £18 per cwt. The average retail price of good hops is from 1s. to 1s. 6d. per lb.

395. Water, called by the brewers *liquor*, is the next essential material to produce beer, and upon its quality will depend, in a great measure, that of the malt-liquor of which it forms a part. Burton ale and beer have always been celebrated; and it appears that this well-deserved character depends mainly upon the quality of the water, which contains an unusually large proportion of sulphate of lime, together with carbonate and muriate of lime. It is well known that these salts exert a considerable depurative power on vegetable juices, as in the manufacture of cane-sugar, &c., and in brewing they supersede the necessity for "finings," the ale brewed with this water becoming clear and bright almost directly. The greater part of the lime is precipitated in combination with the mucilaginous matters, and hence the water, as it exists in the beer, is much more soft than in its natural state. Thames water also appears to make good beer, but it requires a considerable quantity of "finings," as it is comparatively deficient in sulphate of lime. For this reason rain-water, though more capable of extracting the virtues of the malt and hops than river or spring water, is not so well suited either to make it fine or to keep it from being converted into vinegar.

396. Yeast has already been partially alluded to in the sub-section on bread, at pages 91 and 92. It may at any time be made from nitrogenized materials, without the intervention or use of any particle of its own nature, usually called a *ferment;* but this latter method is generally adopted. As yeast is employed for fermenting wort, so in the same way, when it is wanted for that purpose, the surplus yeast is had recourse to from one brewing to another; and as it is very important to use none but that obtained from a good brewing, it is imperative that great caution should be exercised in its selection, inasmuch as in this case, as in many others throughout nature, "like produces like." The best yeast for working beer (called "pitching the tun") is that which is thrown out of the bungholes of the casks into what are called the stillions, to be presently described. In summer it should not be more than two or three days old, but in winter it will keep for a week or even a fortnight, though it always loses strength by keeping. It should be kept in a cool place, in cold water, which should be

changed every second day. The kind of yeast necessary for setting to work any particular kind of malt liquor, is of some importance, as it appears that it should, if possible, be obtained from a similar parent stock to that for which it is intended. Yeast from strong ale works more slowly, but at the same time more strongly than that from small beer, so that when the latter is required to go through its fermentation quickly, it will not do to have recourse to yeast from ale, in order to set it going.

397. The chemical composition of yeast is described at page 91.

398. The Price of Yeast is about 1s. 4d. per gallon, or 4d. per quart.

399. Sugar, as used by the public brewers, must be in the state in which it is imported, that is to say, it must not be in any way manufactured; so that they have the choice of raw sugar or molasses. See page 108.

400. Isinglass, as used for refining ale and porter, is of the coarsest description. See page 126.

401. Besides the above articles, which are allowed by law, it appears, according to the evidence before the late committee of the House of Commons, that several deleterious substances are employed, as *cocculus indicus*, a very injurious and even poisonous seed; *sulphate of iron*; *quassia*, for its cheap bitter; and *salt*, for its specific gravity and for its tendency to produce thirst. According to Dr. Hassall's analysis, however, nothing injurious but salt was discovered in a large number of samples; though at the same time he confesses that it is exceedingly difficult to detect most of the above adulterations. The flavour of liquorice is so marked, and also so commonly met with in London porter and stout, that its absence can scarcely be credited, and it is most probable that it is included in his examination under the sugars which are allowed by law.

Brewing Utensils.

402. Every brewery, whether large or small, has usually the following utensils, called *the plant*, and varied in their details according to the size of the establishment and the nature of its productions. These are—1st, *liquor and wort copper*; 2nd, the *mash-tub* or *tun*, with or without a *mashing machine*, and the *under-back*; 3rd, the *hop-back* and *wort-pump*; 4th, the *cooler*; 5th, the *fermenting-tun*; 6th, the *store-vats*, *casks*, and *stillions*; and, 7th, the *thermometer* and *saccharometer*.

403. A Copper for the wort, as well as for the liquor (water), is generally required, and the two are always used in large breweries,

excepting where the wort and liquor are boiled by steam, introduced by means of pipes into large wooden vats, as is now often done. In private families one large copper is sometimes made to answer the purpose, but two will always be of service, holding each about a third of the number of gallons to be brewed (*figs.* 86 and 87, A).

404. The Mash-tub consists of a wooden vessel, with a false bottom a few inches from the true bottom, and pierced with holes, to allow the wort to drain off from the grains. These holes should be bored with a hot iron, in order to prevent the water from causing the wood to swell, and thus close them up. The false bottom is fixed just above the tap, and should rest upon some projecting blocks of wood fixed against the inside of the tun, so as to be readily taken out. For private families, a sherry-butt, cut down, answers well for the purpose, with the addition of a false bottom (*figs.* 86 and 87, B). The *mashing machine* is fixed vertically in the mash-tuns of large breweries, so as by the revolutions of its arms to stir up the malt when it has the liquor poured in upon it, and thus assist in extracting all the saccharine matter. Long poles with cross-bars, called *oars*, are used instead in small breweries, or in private families (*fig.* 87, C).

405. An Under-back or tub to receive the wort as it comes out of the mash-tub, must always be obtained, and when the latter vessel is made from a sherry-butt, the part cut off answers this purpose well. It requires no tap, the wort being either pumped or ladled out of it (*figs.* 86 and 87, D).

406. The Hop-back is merely a strainer for keeping back the hops as the wort comes out of the copper. According to the size of the plant is the construction of this article, which for small breweries may consist of a hair sieve; for moderate ones, of a square wooden vessel, having a false bottom with holes in it; or in large breweries, of a still more enlarged apparatus, with a perforated metallic bottom.

407. The Wort-pump is only used in public breweries, and it requires to be of a somewhat different construction to the ordinary suction-pump, being intended for use in boiling liquids (*fig.* 87, E).

408. The Cooler is one of the most important parts of the brewing plant, since upon the proper conduct of the part of the process for which it is intended, depends, in great measure, the quality of the beer. In private families good brewings are often spoilt for want of this vessel, as they are often induced to employ in its place a deep tub, which prevents the cooling process being properly carried on; and it is chiefly for want of it that brewing is seldom successful in the summer

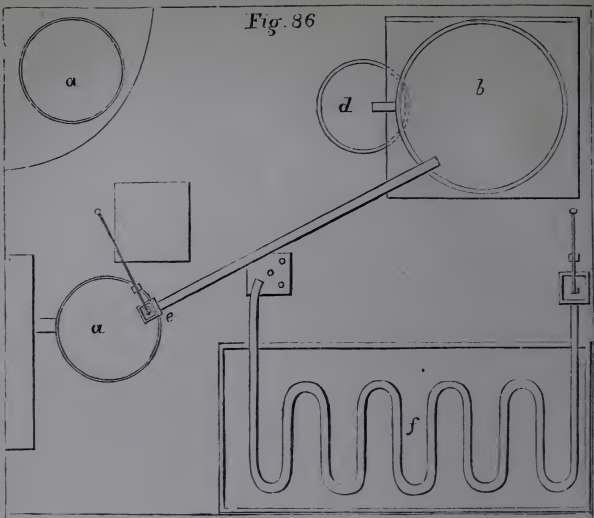


Fig. 86, PLAN, AND *Fig.* 87, VIEW, OF BREWING UTENSILS.

months. The wort ought, in most cases, to be rapidly cooled to 45 degrees or 50 degrees Fahrenheit; and as the temperature of the air in the summer is usually far above this heat, it cannot be effected by contact with it alone, and therefore water just raised from the well is employed by various methods. One of these, and that most usually adopted, is to force a stream of it through pipes coiled through the cooler, by which the wort is made to give out its surplus heat to the water, and thus soon to be lowered to the temperature of that fluid. Gutta percha tubes are now so readily to be obtained at 3d. or 4d. a foot, that this method may always be adopted in private families even; the one end of the tube being attached to the pump, or a vessel into which water is pumped, and the other end of the pipe after being coiled through the wort passing into some adjacent drain. Coolers, as usually made, are oblong and shallow vessels, placed at such a height from the ground that a bucket may be held beneath their tap to catch the cooled wort as it flows out, and thus convey it to the fermenting tun. When, however, a wort-pump is a part of the plant, there is no necessity for using any other method of transfer, and the coolers may be on the ground (*fig.* 86, F).

409. The Fermenting Tun must be large enough to contain the whole brewing, or, if several qualities of malt liquor are brewed at the same time, there must be one for each large enough to contain them. In private families the mash-tun, with the false bottom taken out, is often employed for the purpose, or the under-back, or both together.

410. The Store Vats, which are merely large casks, are, in large breweries, of enormous size, holding sometimes 100,000 gallons; besides these, smaller vats and casks are required, and others containing multiples of 36 gallons, which is the measure of a barrel of beer, for sending it out. These are made of oak, but the vats are sometimes of deal.

411. Stillions are flat wooden troughs, in which the vats or barrels stand while the yeast is coming over.

412. The Thermometer is the well-known instrument for measuring heat, and it is made for the brewer in a tin case, to avoid the danger of breaking.

413. The Saccharometer is a much more complicated instrument, but its importance is fully recognised by all large brewers. According to the quality of the malt will be the quantity of saccharine matter in the wort; and if this does not come up to the proper standard, sugar

or molasses must be added, or the result will be defective. The amount of this saccharine matter in wort *made from malt alone*, may always be estimated by ascertaining its specific gravity, which is all that the saccharometer professes to do, and therefore it is no test to any one but the actual brewer, since salt, or any other substance which increases the density of the wort, will raise the saccharometer, and mislead the person relying upon it. The instrument itself is merely a hollow metal ball, attached to a weighted stem, so regulated that it shall sink in distilled water at 62 degrees Fahrenheit, to a point marked on it, and consequently, as the remainder of the stem is graduated for every degree which it rises above the wort, it will indicate a corresponding density above that of distilled water. It is not, however, much used in private brewing, nor is it necessary to produce a perfect sample of ale, if good malt is always selected. It is exactly similar in principle to the lactometer drawn in *fig.* 88.

Brewing.

414. Brewing is conducted upon certain *principles*, which, in *practice*, are modified to suit particular circumstances, as, for instance, whether *porter*, *ale*, or *small beer* is to be brewed. The first step is to heat a quantity of liquor sufficient to *mash* the malt to be brewed, at an average temperature of 170 degrees Fahrenheit. The accommodation in the copper is seldom sufficient to effect this in one bulk, and therefore the water in it is raised to the boiling point, and then reduced to the proper temperature by mixing it with cold water, and in proportion to the temperature of this last, which will be affected by the state of the weather, must the quantity of it be increased or diminished. For this purpose it is sufficient to know that one part of cold to three of boiling water is the average, in weather fit for brewing, which is not favourably conducted either in very hot or very cold seasons. For the sake of economy, the malt is generally mashed twice or thrice, so as to leave no soluble matter behind, and also to give full time for the conversion of the starch into sugar which is not completed until the access of hot water. A first mash, therefore, is usually made, with just enough water to cover the malt, and at a temperature generally of about 168 degrees, using about eight gallons of water to a bushel of malt. This quantity of water is poured into the mash-tub, and after being carefully raised or lowered to the required degree, the malt is shaken in, taking care to separate it well, so as to prevent its clotting together. When the malt and water are thoroughly stirred together,

the temperature ought to be again taken ; and if it is below 150 degrees Fahrenheit, the next mash must be raised two or three degrees accordingly. The whole is now to be covered over with sacks, so as to keep in the heat as much as possible, and should thus remain for about one hour and a half, or rather less in very cold weather. As soon as the brewer has covered his mash-tub, he begins to charge his copper again for the next mash, having a full hour for the purpose. At the end of the time above named, the brewer having a sufficient quantity of hot water ready for the next mash, proceeds to draw off the first by turning the tap in the mash-tun to run in a small stream. and carefully returning to the grains a gallon or so till it runs fine. This first mash seldom runs off more than half the quantity of wort which was added as liquor, and if the brewing is to be all "one way," or "entire," more liquor is at once added before all of this has run off; but when, as in many private families, two kinds of beer are to be brewed, the wort from each mash must be kept apart. But as the above proportion of malt to liquor would turn out the ale of a very strong nature indeed, it is usual to "sparge" the grains during the time that the first wort is running off, until a sufficient quantity has been collected. Thus, supposing it is intended to brew ale of ten bushels of malt to the fifty-four gallons, then, as the ten bushels have been mashed in eighty gallons of liquor, and as half this will be retained by the grains, twenty-four gallons more of hot liquor must be poured on the malt before the fifty-four gallons will make their appearance in the under-back; and, as the liquor would run through the malt if poured on carelessly from a bucket, it is usual to pour it on from a watering-pot, or some similar vessel, so as to ensure its thoroughly washing it as it passes through. This is called "sparging," and is of consequence in economical brewing. The liquor should be somewhat hotter than for mashing, say from 180 to 185 degrees, according to the weather. As soon as the under-back has received its quantity, as already calculated, the tap is closed, and the brewer proceeds to effect his second mash, using the liquor at a temperature of about 175 degrees, and admitting to the mash-tub as many gallons as he intends to draw off; or if he purposes a third mash, then dividing the whole into two quantities, and mixing them together as they run into the under-back. It will be understood that as soon as the whole quantity required for the strong ale is collected in the under-back, it must be removed to the wort-copper, so as to leave it ready for the wort from the second mash. It is well known among brewers that the wort from the several mashes gradually

changes its character, being at first rich in saccharine matter, with a small proportion of mucilage, gum, &c.; afterwards the sugar diminishes, and the latter ingredients increase in quantity, so that the wort is not only weaker and of less specific gravity altogether, but it is also much less sweet, and being more mucilaginous, it is more liable to run on to acetous fermentation. Many brewers, therefore, after drawing off their ale, add a proportion of sugar to brew their table-beer, using from one to two pounds to eighteen gallons, according to the weakness or strength of the wort in point of saccharine matter. When the brewing is confined to one quality only the process is the same, except that the whole quantity is run through the malt and mixed together before boiling or hopping. The malt, when thus mashed and exhausted of its soluble matter, receives the name of "grains."

415. For Boiling and Hopping the Wort, a second copper is required, as already mentioned in par. 403, unless the brewing is limited to a small quantity, and that of one kind of beer only. The reason for this is that the wort should be boiled as soon as possible, after it is received in the under-back; and as the liquor-copper is required to heat the water for the second mash, it cannot be used for boiling the wort till the whole of the mashing is finished. If this precaution is neglected, the wort remaining too long in the under-back is apt to turn sour, or to become "foxy," as it is called. The wort, therefore, is at once ladled or pumped into the copper; and after being well mixed with the hops, it must be raised to the boiling point as soon as possible, when the fire must be raked or regulated so as to keep it at a *low* boiling temperature for the proper time. The Quantity of Hops per bushel of malt varies according to the taste of the neighbourhood, the strength of the ale or beer, and the age of the hops. For strong ale intended to be kept, a pound a bushel is about the average, and for table-ale, from half a pound to three-quarters, the latter quantity being required when the brewing is at or near the summer time, or where a bitter beer is preferred. When what is called "bitter-beer" is required, nearly double the quantity of hops must be used; and if they are of the Worcester growth, the flavour will still more nearly approach the original Burton. The Proper Time for the boiling to be maintained may be known by the wort "breaking up" into flakes, that is, the mass of fluid, which at first is uniformly dense in appearance, becomes converted into a flaky liquid, part bright, and the remainder in small flattened granules; and when this is the case,

the boiling is carried far enough, and the wort must be strained from the hops into *the cooler*. The first wort requires much less boiling than the second, the average being generally about an hour and a half, while for the second mash two hours or two and a half will not often be too long, and for a third, three hours at least must be the period adopted. The hops, when strained, are returned into the copper for the next boiling, as some little soluble matter still remains; but to these a second quantity must be added for the boiling of the second mash. As the hops are not squeezed, they retain a certain amount of wort, which will amount to about two quarts to each pound of hops, and which must be allowed for in the brewing, as well as for the loss by evaporation. When the wort is intended to be boiled for more than one hour, it is better not to add all the hops until within an hour of the time when it is to be cooled, as the aroma is, to a certain extent, lost in boiling. The wort is next strained into the under-back or direct into the cooler through the hop-back, or common strainer, as the case may be.

416. Cooling the Wort should be conducted with as much speed as possible, and hence it should not be more than three or four inches deep in the cooler, except in very cold weather. When a refrigerator is used, it must not be set in action until the wort is somewhat reduced in temperature; but as soon as it has fallen to about 140 degrees, begin and cool it as quickly as can be effected by these means until the wort is down to about 50 degrees, after which it is at once removed to the fermenting tun.

417. Fermentation, or "pitching the tun," as the brewer's slang terms this process, is the part in which the greatest experience is required; for though the rapid cooling is quite as necessary, yet it is so easily managed when the proper means are used, that any one of ordinary capacity may readily cool his wort, if he has the necessary apparatus and premises. In fermentation, however, much more nicety is required, and many things must be taken into the calculation, as the quantity and quality of the yeast, the heat of the apartment, and the kind of beer to be produced. The principal points which affect this process are—1st, *The weather*, including the electrical state of the atmosphere, which influences the fermentation, producing a tendency to acetic fermentation, when there is disturbance in the equilibrium, as evidenced by what is called "thundery weather." Warm weather has a similar effect in accelerating fermentation, while very cold weather retards it.—2nd, *The nature of the yeast*, which should be

obtained from a good and successful brewing, and from beer of a similar quality to that to be fermented.—3rd, *The proper conduct of the mashes;* for if the liquor has been used at too low a temperature, fermentation must be carried on with care, or the wort will be impoverished, while if the heat has been too great it must be effectually cleared by fermentation, or it will be "ropy," from excess of mucilage remaining.—4th, *The heat of the room* in which the fermenting process is to be conducted, must be regulated according to the heat of the external atmosphere, the strength of the beer, and the quality brewed. Small brewings will require a higher temperature than large ones, and the higher the outer temperature, the more carefully must the inner be kept down below it, avoiding all cold draughts as far as possible. The Average Quantity of Yeast to be added is about one pint of good solid yeast to a barrel of beer, varying it according to circumstances, as shown in the accompanying table.

Amount of yeast, by Measure, to each Quarter of Malt, suited to varieties of Malt Liquor.

Heat of Atmosphere.	Ale.	Porter.	Table-beer.
Degrees.	Quarts.	Quarts.	Quarts.
25	$2\frac{3}{4}$	$3\frac{1}{4}$	$3\frac{3}{4}$
30	$2\frac{1}{2}$	3	$3\frac{1}{4}$
35	$2\frac{1}{4}$	3	3
40	2	$2\frac{1}{2}$	3
45	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{3}{4}$
50	$1\frac{1}{2}$	2	$2\frac{1}{2}$
55	$1\frac{1}{4}$	2	$2\frac{1}{4}$
60	1	$1\frac{3}{4}$	2

When the weather is cold the whole of the yeast may at once be stirred in; when warm, one quarter may be reserved to be added or not as required. The first sign of fermentation is a fine white circular line round the edge of the tun, which gradually becomes broader till the whole surface is creamed over. After this a slight singing noise is heard, arising from the bubbles of gas as they pass up to the surface; and as these increase in number the creamy head becomes thicker and more irregular. At this stage the froth should assume a cauliflower appearance, white at first, then yellow, and lastly of a brownish yellow. If the curling head is in broad flat flakes, there is something wrong; or, if the air-bubbles are too large and open, with a bluish-white colour. When the depth of head is not sufficient, and the cauliflower appearance is not put on, the wort is unsound, and is said to "boil." In the

last stage of fermentation the head having risen to a great height, becomes more dense and close, the bubbles burst into each other and form large ones, which in their turn again break, occasioning a sudden and partial dropping of the head, until it becomes a close, dense, brownish mass, which, if permitted, would sink to the bottom of the tun, and is therefore skimmed off as soon as it shows the slightest tendency to do so. If this were allowed, the beer would have a bitter taste, and be what is called "yeast bitten." As soon as the fermentation is well established, the head should not be disturbed until it is perfected, when it should be carefully skimmed off; but it is not generally the custom to allow the beer to cleanse itself entirely in the fermenting tun, but when the process is nearly completed it is divided into smaller store barrels in which it is left to complete its cleansing, the bung being left out for that purpose, and the yeast suffered to run over the side into the *stillion* or other vessel set to receive it. This division has a tendency to check the fermentation, and sometimes it is necessary to add a little more yeast and stir it well up in order to re-establish the cleansing process. At other times a little salt and wheat-flour is mixed up carefully with the beer, and from the effect of the gluten the remaining portion of the yeast is discharged by a fresh fermentation.

418. The Filling Up of these casks must be attended to from the first, so that the yeast may be enabled to overflow from the bunghole with facility; and this should be done three or four times on the first day, and twice or thrice a day afterwards, till the fermentation has apparently ceased, when the bungholes are to be cleaned of all yeast and well bunged. Then remove the casks to the cellar where they are to remain, take out the bung, introduce to each barrel of beer from three-quarters to a pound of fresh hops mixed with some sound beer of similar quality, and re-adjust the bungs securely. Put in the vent-pegs, loosely at first, and to be gradually closed as the carbonic acid ceases to be given off in large quantities. Table-beer, if properly made and cleansed, ought to be fine in a fortnight or three weeks; and ale in two or three months, according to its strength.

419. Cleanliness is of the greatest importance in all brewing operations, and the brewer should spare no pains in scalding out all his plant, and the store barrels in particular, which will give a musty taste to the beer if they are at all foul. Lime is an excellent material for aiding the cleaning of vats of barrels which have become musty, taking care to swill them well with plenty of water in order to get

rid of it. New casks should be well soaked in a hot brine of salt and water, and afterwards should have some spent hops left in them with water and a little yeast, so as to cause some degree of fermentation. The day before the brewing all these points must be carefully attended to. When all is ready, the copper is filled with water at night, and the mash-tub, under-back, &c., placed ready for mashing, with malt, hops, &c., at hand; then the last thing at night light the fire, and damp it well down, so that by the early morning the copperful of liquor may be hot, ready for the first mash, or nearly so.

Table-ale or Beer.

420. Table-ale or Beer is generally brewed from the second mash of strong ale; but when this is not the case, it requires about four or five bushels of malt, and from four lb. to seven lb. of hops, to fifty-four gallons of water. Very small, or harvest beer, is sometimes brewed with two or three bushels of malt and four lb. of hops, but this will not keep more than a week or ten days. Pale malt is the best for this beer, unless a high colour is required.

Strong Ale.

421. Strong Ale is brewed from eight to ten bushels of malt, and eight lb. or ten lb. of hops. Pale malt here, again, is the best; but this is a matter of taste depending upon the colour preferred.

Bitter Ale.

422. Bitter Ale is generally brewed from very pale malt, the quantity of which is from four to five bushels, and of hops eight lb. to the hogshead.

Stout.

423. A hogshead of Stout is brewed from one quarter of pale malt, two bushels of brown malt, and three-quarters of a bushel of black or patent malt mixed together, and hopped with eight lb. of hops.

Porter.

424. Porter is often the second mashing of malt for stout, with the addition of treacle. Thus, from the above brewing of stout, with the addition of eighteen lb. of treacle, thirty-six gallons of porter may be brewed. Or, if porter is to be brewed at once from the malt, then called "entire," half the quantity ordered for stout will be required.

Extract of liquorice is said to be used instead of treacle, and certainly the taste of porter bears out the popular belief, but it has not been detected in it by microscopical examination.

Cellaring, Fining, &c.

425. The cellar for keeping beer should not be too cold or too hot, but should be preserved as near as possible at fifty-five degrees Fahrenheit. A close cellar, also, like one fit for wines, is not adapted for beer. The vent pegs should be carefully watched, and should be closed as soon as the fermentation will allow. When beer is required to be used before it has become fine in the natural course of events, or when it refuses to do so, isinglass in some form is had recourse to, in order to effect this object, and the mixture so used is called "finings." In ordinary cases, one ounce to a barrel is the proper quantity of isinglass; and, to use it, dissolve it in a little fine beer, not sour, until the whole is of the consistence of treacle, when it should be strained by twisting it in a piece of canvas, after which it may be reduced in a little more beer, until it forms a liquid of the consistence of cream, when it is fit for use. For this purpose draw out a pail of the beer to be fined, and add the finings in quantity proportioned to its cloudiness, an ounce to the barrel being the *average*. Whisk the whole in the pail until a head is produced, when it may be poured into the bunghole, first of all making room for it by taking out another pailful. The whole contents of the barrel are then to be well stirred up, and the last-drawn pail restored, when the bung may be replaced as soon as the bubbles caused by the stirring are gone down. In a few days, or a week or more, according to the kind of ale, try whether it is bright, and if not, a longer period must be given it. When very stubborn, some other substance is to be tried, as *salt*, *alum*, or *quick-lime*. Half a pound of the first, or two ounces of the two last, are the quantities for a hogshead of beer. *Ropiness* arises from defective fermentation, and the best remedy is a fresh supply of yeast, and a second fermentation, adding a little wheat-flour at the same time.

426. Beer is Racked from large casks into small, in order that it may remain good while on draught. But whenever a large cask is tapped for this purpose, it should be emptied entirely, or the air getting into the upper part will make its contents flat. A small quantity of hop should be added to each cask, and these should be quite clean, and, if possible, fresh from their last using. When, in draught, beer becomes flat and stale, a little new beer added will be the best remedy;

or some wheat-flour may be made up into a paste with syrup or treacle, and dropped into the cask, which will sometimes recover beer only slightly gone off.

427. Malt Liquors of all kinds are much improved in flavour and briskness by bottling, if this plan is adopted at the proper time. Very often when a barrel of any kind of this beverage is almost sour, it is made up with a little additional sugar, and bottled with the expectation that it will turn out well. But the fact is, that it ought not *quite* to have completed its fermentation when it is bottled, or at all events its saccharine matter should still be unconverted into alcohol or vinegar. Beer should never be bottled while there is any tendency to spirt from the vent-peg, but as soon as this has ceased, and it is fine, it may be bottled with advantage. If there is any doubt about its being fit, the corks may be left out for a day or two, and on being driven in they will generally require the aid of a string or wire to keep them down, and then with a strong bottle there is every chance of avoiding a failure from either extreme. When beer is somewhat too flat, a tea-spoonful of sugar, or a raisin or two, or a few grains of rice, will afford new *pabulum* for fermentation, and set the carbonic acid free, as is desired for this purpose.

428. Malt Liquors are brewed on the most extensive scale in London, as well as the provinces, by large brewers, one or two of whom in London consume more than one hundred thousand quarters of malt per year. These large firms brew a genuine article, and sell it to the landlords of the numerous public-houses who patronise them either voluntarily or from compulsion. In London the licensed victuallers number about 4500, and the beer-houses more than 2000, or together nearly 7000 houses; being about 1 to every 45 houses, and 1 to every 350 inhabitants. It is, therefore, highly important that the beverages supplied by them should be good; and though they are loudly accused of adulteration, yet the charge has not been so clearly established as to make it an undoubted fact.

429. The Adulteration of Malt Liquor has been most carefully examined by a committee of the House of Commons, and since then by Dr. Hassall, who first had his attention called to the bitter beer of the Burton breweries, which was said to be adulterated with strychnine, in order to obtain a cheap bitter. This has been most completely disproved by several high chemical authorities, and also by Dr. Hassall, at the instigation of the *Lancet*, all coming to the conclusion that the bitter ale of Messrs. Bass & Co. and Allsop & Co. is a pure and whole-

some beverage, concocted from malt, hops, and water alone. With regard to stout and porter, several seizures of illegal articles to "make up" quantities of them have been made by the Excise, consisting of cocculus indicus, Spanish juice, grains of paradise, copperas, quassia, &c., so that it has been indisputably proved that the attempt has been made to use these noxious articles in the trade. It is well known that publicans are very careful how they allow their customers to invade their underground territories in the morning, when the porter, &c., for the next day is preparing; but this is not necessarily a proof of guilt, but rather may be caused by a desire to be free from interruption. Nevertheless, they are universally charged with these tricks, and by general consent it is supposed that something or other is done in the cellar which will not bear the light of day. Dr. Hassall, however, was unable to detect any adulteration in porter or stout, except with water, which is a venial offence, comparatively; and, in addition, a certain portion of salt, which, also, is only intended to increase the thirst of the customers, as well as to raise the density of the porter. Acidity of an acetic kind was also detected, to a great extent. As far, therefore, as the *Lancet* Commission is concerned, the London publicans and brewers come out with tolerably clean hands; and, with regard to bitter beer, have absolutely gained a character which they had not before.

430. THE RETAIL PRICES of good sound malt liquors in London are now on the average as follows, some of the most celebrated brewers demanding a somewhat higher rate than the rest:—

CASH PRICES PER FIRKIN OF NINE GALLONS, July 5th, 1856.

	s.	d.
XXX	15	0
XX	12	0
X	9	0
A	7	6
Stout	11	6
Porter	9	0
Table-beer	5	0
Pale India ale (bitter ale)	12	0
Ditto (Allsop's or Bass's)	16	6
Ditto, bottled per doz.	4	6
Barclay's stout, bottled "	8	6

431. ALE MEASURE is as follows:—

9 gallons make a firkin.
18 " " kilderkin.
36 " " barrel.
54 " " hogshead.
108 " " butt.

Sect. 2.—Cider and Perry.

432. Cider and Perry are the fermented juices of apples and pears respectively, each being treated exactly in the same way.

433. The Fruit must be of a very different quality from those intended for the table, which are luscious, and almost entirely devoid of the astringent properties which are required for keeping the juices of those intended for cider and perry. This astringency is mainly due to the tannin contained in the fruit, which leaves a most unpleasant sense of roughness on the palate. It is very difficult to make these two drinks from sweet fruit, and almost impossible without an admixture with some of those containing the astringent principle, though some makers, even with the former, contrive by careful and often-repeated racking to stop the acetic fermentation, and keep the saccharine matter in its original state.

434. Both Apples and Pears consist of malic acid, mucilage, grape-sugar, tannin, an essential oil and bitter principle in the seeds, and water.

435. The Conversion into Pulp is the first part of the process, which in the old methods was a very long one, and, with the aid of a very clumsy stone-mill worked by a horse, extended over a long period of time, seldom being completed before Christmas, during which time half the apples became rotten. At present, as soon as they are gathered, or within a few days after, a portable machine is hired by the grower and worked by its owner at so much per hogs-head; most of them being able to grind and press eight or ten hogsheads a day, of 100 gallons each, or a proportionate number of those containing fifty-four gallons. In the Worcester and Hereford districts, the former measure is adopted, while in the Western counties the ordinary beer measure of fifty-four gallons is the hogshead employed. These machines tear and grind the apples to pieces either with the aid of horse-power—requiring three or four horses, or by steam, the last being seldom employed. The mill is of steel, and acts not by mere pressure, as in the old stone-mill, but by the ordinary action of grinding. The pulp thus prepared is at once pressed, being placed, as in the old press, in horse-hair bags, and then squeezed by hand-labour, the juice running out being in the condition of new cider, ready to be at once moved down into the cellar. After all the apples are ground and pressed, the pulp is mixed with water, re-ground and re-pressed, and makes about a tenth of the original

quantity of a liquid which is called "water cider," and which must be soon drunk, because it will not keep, though sweet and agreeable to the palate for a short time.

436. The New Cider, on being stored, soon begins to ferment, seldom requiring any aid for that purpose, as in the case of malt-liquor. Sometimes, however, when it refuses to work, a little yeast, say about a pint, is stirred into a hogshead of cider, and that very seldom fails to set it going. Generally, in twenty-four hours, a scum begins to rise, which should be carefully removed as fast as it makes its appearance. The cider is either temporarily left to ferment in large vessels set on end with their heads out, or else it is at once poured into the casks where it is to remain, according to the peculiar methods practised in different localities. If the large upright casks are used, the cider is only allowed to remain in them for 36 or 48 hours, when, if the fermentation has caused the cider to throw down a considerable amount of its mucilage in the shape of flocculent matter, it is at once racked into the store-casks, and there the fermentation is allowed to progress to a certain point, which varies greatly with the particular kind of fruit, and which can therefore scarcely be described. The bungholes are kept filled up with cider of corresponding age and quality, and thus the working froth is caused to flow over every time the new fluid is added. After a certain time, when the fermentation is considered to have proceeded far enough, the cider is racked again into another cask, which stops the fermentation for an uncertain period, and on its again re-appearing, recourse is had to a third or fourth, or even a fifth racking. So careful are some of the best cider-makers to catch the exact moment when this new attempt at fermentation shows itself, that they will sometimes sit up all night rather than allow the proper moment to slip by without taking advantage of it. Some growers boil their cider for the purpose of stopping the fermentation, others use the fumes of sulphur for the same purpose; but the best sweet cider, which is always that in which the process has been stopped, is generally made by attending carefully to the racking-process.

437. Cider, if well made, and of good fruit, should not require any "fining;" but if it refuses to clear itself, isinglass or white of eggs may be mixed with it, exactly as for beer (see par. 425).

438. Cider and Perry are bottled; they are brisk and full of carbonic acid gas, and often greatly admired as a substitute even for champagne. No precaution is necessary, but to bottle the one or the other in strong

bottles with good corks, and not to delay it too long, though at the same time it is necessary to avoid attempting to confine either cider or perry before the fermentative process is settled, or the strongest bottles will be burst.

439. The Quality of both cider and perry varies very considerably, there being every grade, from sweet to sweet-and-rough, rough-without-sweet, and rough-and-acid descriptions. Much of this is due to the soil, for some soils will not produce any thing but rough and sour perry and cider. Still more, in general, depends upon the manufacture; and the careful grower will often, by a few hours' attention per week, double the value of his stock.

440. Cider is sold at from 6d. to 1s. 6d. per gallon, and perry at from 10d. to 3s., or even 4s., for the same quantity. Both of these drinks are always sold by the gallon, although the hogshead is often mentioned as the measure employed. The alcoholic strength is greater than is supposed, some of the common rough sorts being capable of affecting the head very rapidly. From the quantity of acid in general contained in cider and perry, they are seldom found to agree with the stomachs of those who have not been early accustomed to their use; but in the fruit-districts they agree well with most people, and do not disorder the stomach and head when taken to excess to the same extent as malt liquor.

Sect. 3.—Wines and Spirits.

441. Wine is generally defined to be the fermented juice of the grape, and this description is sufficient for all foreign wines; but there are also some of British growth or manufacture which have nothing to do with that fruit, but are the result of the fermentation of some other saccharine matter, as, for instance, currant and gooseberry-wine, elderberry-wine, ginger-wine, rhubarb-wine, malt-wine, &c. The above definition must, therefore, be confined to *foreign* wines.

442. It is contended by the advocates of total abstinence from alcoholic drinks, that wine, or the fermented juice of the grape, is a modern invention, unsanctioned by Scripture, and unnecessary to man; but this hypothesis is utterly untenable; and though it would take some space to refute it, yet there is no doubt that it is capable of as complete a contradiction as is the assertion, that black is white or white black. Indeed, as they do not deny that the juice of the grape in some shape was used, they almost admit the fact, because it is well known that new and old wine were both recognised by the

Romans and also by Christ himself; and, therefore, if *old*, it must have been fermented, because in wine this process takes place without any adventitious aid. Supposing, therefore, that the wine mentioned in Scripture was fermented, we have full authority for its use, though of course there is none for its abuse.

443. The Vine does not thrive except between the latitudes thirty-five and fifty degrees, though north of this it will sometimes ripen, but the produce is a poor apology for the grape, and when its juice is converted into wine it is weak, and readily changes into vinegar. The grapes are yielded in considerable abundance, and at the proper season are removed from the vine, either by the hand or some cutting instrument. In most of the wine-growing countries three separate gatherings or vintages are made: the *first* of which includes all the finest and ripest bunches, from which the rotten or imperfect berrics are carefully removed; a *second* gathering is composed of the next best bunches; whilst the *third* is made up of the refuse of the two first. The gathered bunches are deposited as lightly as possible to avoid bruising, and the damaged portions set aside. In order to effect the gathering without injury the labourers use a kind of osier basket, which is conveyed on the head or on the back of a horse. In some cases the grapes are removed from the bunches, and in others these last are pressed whole, as the astringent principle contained in the stems is considered beneficial, and there is no doubt that it aids in keeping the wine. Grapes for white wines are rarely removed from the stalks. The next operation consists in the *pressing*, which is managed variously in different countries, some of them being still addicted to the use of the most rude methods, as, for instance, the mere weight of the human body, which is the prevailing method in some parts of France. In other parts a wine-press is employed, but for making red-wine the treading is essential in order to disengage the colouring-matter from the skins, though there can be no objection to the subsequent use of the press. The only species of wine made from the grape without mechanical pressure other than its own weight, is that called *lagrima*, which flows from the grapes as they are suspended in bunches; but this can only be made from the muscatel grape. The juice thus obtained, either by treading or pressing, or in the way used for *lagrima*, is called *must*, and is turbid, with a sweet and agreeable taste, and a laxative effect on the human system.

444. When Must is put into a suitable vessel, at a temperature of fifty-five to sixty degrees Fahrenheit, a gradual fermentation ensues

as a natural consequence of the presence of vegetable albumen in the grape; bubbles of carbonic acid gas are evolved, and rise to the surface, bringing with them much of the refuse or dregs, which accumulate into a thick, spongy, and firm crust, covering the whole liquor. After a certain time the crust breaks into fragments and falls to the bottom, which is a sign that the fermentation has proceeded far enough, and it is therefore checked by racking into casks and bunging them carefully, after removing them into a cool cellar. The effects of fermentation are similar to those produced in malt liquor, described at page 175; much of the saccharine matter is converted into alcohol, and the remainder is pleasant to the palate, with just enough sweetness to be agreeable. It is mainly upon the degree to which fermentation is carried that the flavour of the wine depends, though the kind of grape and the nature of the soil and climate have also their proportionate effects. From the development of alcohol, the effect upon the brain—in occasioning excitement and, in large quantities, drunkenness—is produced, by which all spirituous liquors are distinguished; while there can be no doubt that any quantity of must, or unfermented wine, may be swallowed with perfect impunity, as far as intoxication is concerned. But even after the wine is stored in the casks a slow fermentation still goes on, by which the mucilaginous particles and the tannin and woody matter, as well as the tartar, are thrown down in the shape of what is called *lees*. In this slow change the taste of the wine becomes more refined, and the harshness disappears, which was due to the presence in solution or suspension of the above ingredients. But if the first fermentation has not been fully performed, the second is also interfered with, and the wine continues turbid, emits bubbles, and sometimes breaks the containing vessel, as in the sparkling wines, in which this is purposely effected, but with great care, to avoid over-doing it. If, on the other hand, the first fermentation has been carried too far, the wine is liable to run on to the acetous fermentation, which is very slow and insensible, but surely begins as soon as the alcoholic stage is concluded, if not checked by artificial means. Acetic acid once formed cannot be altered into any other useful product, and the wine-grower is compelled to conceal its presence by converting it into a neutral salt, adding for that purpose an alkali or alkaline earth, or, in some cases, lead, which unites with acetic acid to form the acetate of that metal, a salt which has a *sweet* taste, not disagreeable to the palate, and without much effect upon the colouring matter of the wine, while at the

same time it retards its fermentation and putrefaction. Hence, its use has always been adopted by those who either are ignorant of its baneful effects upon the human system, or are reckless of the consequences. The alkalies, on the other hand, destroy the red colour of wine, changing it to a dark olive, and producing a disagreeable effect upon the flavour, so that they are never adopted except with the white wines.

445. SULPHURING AND FINING are further processes, which are had recourse to in wine-making; the former being intended to stop the fermentation, and the second to remove the turbidity. Sulphur is chiefly applied in the form of the sulphurous acid given off in its combustion, and the process consists in burning a sulphur match in the bunghole of the cask, or in mixing sulphurous acid gas with some must, and stirring this into the wine. The finings used are white of eggs, isinglass, and gum-arabic, the last being preferred on account of its not being liable to putrefaction.

446. WINES ARE ALWAYS MEDICATED, more or less, for every market, or they would otherwise be reduced to a few leading varieties, so as to interfere in a great measure with the existing profitable trade. Much of this part of the art of wine-making is effected by mixing various wines together, at the time when they make a second attempt at fermentation, which is called "bearing the fret," and the operation "fretting in." When wines are mixed, they always have a tendency to ferment again, and the compound is never complete till this is settled and over. Some kinds of grapes are only cultivated for the purpose of making a wine suited to flavour others of insufficient character, and which is kept solely for that purpose. Brandy is very generally used, especially for the English market; and besides these aids, several other ingredients are employed for imparting flavour, as bitter almonds, orris-root, worm-wood, rose-water, &c.; while in order to raise the colour, burnt sugar, certain berries, and oak chips, as well as logwood, are brought into requisition.

447. WINES ARE RED when the black grape with its skin has been employed in their manufacture. The white grape makes a light yellowish-brown wine, and the black grape freed from its skin, one of a similar colour but rather darker. The first great sub-division is therefore into *red* and *white*. Another entirely independent of the first, is into *astringent* or *dry wines*, including Hock, Claret, Bucellas, Moselle, Burgundy, Champagne, Sherry, and Madeira; and *sweet wines*, as Malaga, Lisbon, &c., which contain a large proportion of sugar

unconverted into alcohol. Lastly, some of the dry wines are checked in their fermentation and bottled, so as to be used in a *sparkling* or *foaming* condition, which, however, is not necessarily attending upon any one kind, Champagne, Burgundy, Moselle, &c., being all sold either in the sparkling or still condition.

448. The Chemical Constituents of Wine are nearly as follows, the proportions varying in different vintages and qualities, and according to the age of the samples examined—viz., water, alcohol, mucilage, colouring matter, supertartrate of potash (or tartar), tartrate of lime, acetic acid, and in some cases, when sparkling, carbonic acid. In addition to these, most wines possess a peculiar volatile principle which has never been isolated, and upon which the peculiar flavour or *bouquet* of the wine depends. The quantity of alcohol in different wines varies considerably, and, according to the analysis of Brande and Henderson, in the proportions set down in the annexed list, to which are added, for the sake of reference, malt liquors and spirits. Many of them contain brandy, added solely for the British consumer:—

Per Centage of Alcohol contained in—

Scotch whisky	54.32
Irish, ditto	53.90
Brandy	53.39
Rum	53.68
Gin	51.60
Marsala	25.09
Ditto, weaker	18.40
Port	23.39
Madeira	22.27
Sherry	19.17
Teneriffe	19.79
Lachryma Christi	19.70
Constantia	19.75
Ditto, red	18.92
Lisbon	18.94
Cape muscat	18.25
Roussillon	18.18
Malaga	17.26
Hermitage	17.43
Malmsey Madeira	16.40
Claret, full	15.10
Ditto, thin	12.91
Sauterne	14.22
Constantia	14.50
Burgundy	14.57
Champagne, still	13.80
Ditto sparkling	12.61
Hermitage, red	12.32
Vin de grave	13.37

Frontignac	12.89
Rhenish wines, average	12.08
Ditto, weak	7.36
Johannisberg...	8.71
Rudesheimer, 1811	10.72
Ditto, 1800	12.22
Gooseberry wine	11.84
Cider, highest average	9.87
Ditto, lowest...	5.21
Mead	7.32
Ale	6.87
Stout	6.80
Porter	4.20
Small-beer	1.28

449. The effect of Wines upon Man depends partly upon the alcohol which they contain, but partly also upon other matters, as for instance, the astringent wines, which act not only as stimulants, but as tonics, in virtue of the extractive matter suspended in them; and, again, the sparkling wines act more rapidly upon the brain in consequence of the carbonic acid gas which they contain; besides which, the peculiar acids which are developed in them have a slight diuretic effect, totally different from port wine, which has an opposite tendency. According to Henderson, who is still received as the best authority on the subject, and in whose conclusions on these points I most fully concur, the following are the peculiarities in the effects of the different kinds of wine:—"1. Among the brisk wines, *champagne* may be considered the best, and is the least noxious, even when drunk in considerable quantity. The wines of Champagne intoxicate speedily, probably in consequence of the carbonic acid in which they abound, and the volatile state in which their alcohol is held; and the excitement is of a more lively and agreeable character and shorter duration than that which is caused by any other species of wine, and the subsequent exhaustion less. Hence the moderate use of such wines has been found occasionally to assist the cure of hypochondriacal affections and other nervous diseases, where the application of an active and diffusible stimulus was indicated. The opinion which prevails that they are apt to occasion the gout, seems to be contradicted by the infrequency of that disorder in the province where they are made; but they are generally admitted to be prejudicial to those habits in which that disorder is already formed, especially if it has originated from addiction to stronger liquors. With respect to this class of wines, however, it is to be observed, that they are drunk too often in a raw state, when, of course, they must prove least wholesome; also in consequence of the

want of proper cellars, and other causes which accelerate their consumption, they are very rarely kept long enough to attain their perfect maturity. It is also worthy of notice, that in order to preserve their sweetness and promote effervescence, the manufacturers of champagne commonly add to each bottle a portion of syrup, composed of sugar-candy and cream of tartar, the highly-frothing kinds receiving the largest quantity. Therefore, contrary to the prevailing opinion, 'when the wine sparkleth in the glass and moveth itself aright,' it is most to be avoided, unless the attributes of age should countervail all its noxious properties.—2. The red wines of *Burgundy* are distinguished by greater spirituosity, and a powerful aroma. Owing perhaps, to the predominance of the latter principle, they are much more heating than many other wines which contain a larger proportion of alcohol. The exhilaration, however, which they cause is more innocent than that resulting from the use of heavier wines. The better sorts may be sometimes administered with advantage, in disorders in which stimulant and subastringent tonics are required. The same observation will apply to the wines of the Rhone, and the lighter red wines of Spain and Portugal.—3. Possessing less aroma and spirit, but more astringency than the produce of the Burgundy vineyards, the growths of the *Bordelais* are, perhaps, of all kinds, the safest for daily use, as they rank among the most perfect light wines, and do not excite intoxication so readily as most others. They have, indeed, been condemned by some writers as productive of gout, but I apprehend, without much reason. That with those people who are in the practice of soaking large quantities of Port and Madeira, an occasional debauch in claret may bring on a gouty paroxysm, is very possible; but the effect is to be ascribed chiefly to the transition from a strong brandied wine, to a lighter beverage, a transition almost always followed by a greater or less derangement of the digestive organs. Besides, we must recollect that the liquor which passes under the denomination of claret, is generally a compound wine. It is, therefore, unfair to impute to the wines of the Bordelais those mischiefs, which, if they do arise in the manner alleged, are probably, in most instances, occasioned by the admixture of other vintages of less wholesome quality.—4. The wines of *Oporto*, which abound in the astringent principle, and derive additional potency from the brandy added to them previously to exportation (especially those intended for the British market), may be serviceable in disorders of the alimentary canal, where gentle tonics are required. But the gallic acid renders

them unfit for weak stomachs, and what astringent virtues they show will be found in greater proportion in the wines of Alicant and Rota, which contain more tannin and less acid; the excitement they induce is of a more sluggish nature than that attending the use of the purer French wines, and does not enliven the fancy in the same degree. As a frequent beverage, they are unquestionably much more pernicious.—5. For a long time the vintages of *Spain*, and particularly the sacks, properly so called, were preferred to all others for medicinal purposes. The wines of Xeres (sherry) still recommend themselves by the almost total absence of acidity.—6. Of all the strong wines, those of *Madeira*, when of good quality, seem the best adapted to invalids, being equally spirituous as sherry, but possessing a more delicate flavour and aroma, and though often slightly acidulous, agreeing better with dyspeptic habits. Some have thought them beneficial in cases of atonic gout, probably without much cause; for whenever a disposition to inflammatory disorders exists, the utility of any sort of fermented liquors is very doubtful.—7. The light wines of the *Rhine* and those of *Moselle* are much more refrigerant than any of the preceding, and are frequently prescribed in the countries where they grow with a view to their diuretic properties. In certain species of fever, accompanied by a low pulse and great nervous exhaustion, they have been found to possess considerable efficacy, and may be given with more safety than most other kinds, as the proportion of alcohol in them is small, and its effects moderated by the presence of free acids. They are also said to be of service in diminishing obesity.—8. It is difficult to conjecture on what circumstances the ancients founded their belief in the innocuous qualities of *sweet wines*, contrasted with the drier and more fully fermented kinds. They may not intoxicate so speedily, and as they clog sooner upon the palate, are perhaps generally drunk in greater moderation. When new they are exceedingly apt to disorder the stomach; and, when used too freely, produce the same effects as the heavier dry wines. In their more perfect state they may answer the purpose of agreeable and useful cordials; but as the excess of saccharine matter retards their stimulant operation, they ought always to be taken in small quantities at a time."

450. The various Wines of Spain, Portugal, France, Germany, &c., are imported into this country chiefly in wood; but some of them, as the best qualities of the German and French wines, in bottle only, being packed in cases containing generally three dozen bottles each. The bottled wines are in most cases fit for consumption after two or

three months' rest to recover the agitation caused by travelling, in which state they are said to be "sick." Wines in wood must be frequently kept for a considerable time, in order to deposit all the woody and mucilaginous matter, which is never afterwards completely thrown down if the wine is bottled too soon. The pipe or butt is therefore removed to a good cellar, which should be free from the jar of heavy traffic, and also of an even temperature, as near as possible to fifty degrees Fahrenheit. Here it may rest for three or four months, when a spile is to be inserted, and a sample tasted, by the state of which the purchaser is guided as to the propriety of bottling it at once, or of waiting for a further deposit of the objectionable matters. Wine should always be bottled before it has lost all the sweetness which it possesses, and the owner should not wait for it to acquire the exact amount of dryness which he expects it to have when bottled and fit for use. If he waits thus long he will find that instead of having a wine dry enough for his palate, it will be too thin, and perhaps acid, and will, in fact, be ruined for ever. The exact degree of richness and fruitiness therefore required are only to be judged of by those who have had some little experience, and consequently the young housekeeper will do well to consult some friend upon this very important point. The particular vintage influences a good judge very materially in deciding, as he is aware that wine of a vintage known to produce rich quality, will always require a longer time to mature than that of an inferior year. Many other circumstances must always be taken into the account, as the kind of wine, and the taste of the party for or by whom it is chiefly to be used. Thus, many people like a thin and pale port, and for them it should be kept long in the wood, so as to discharge its colour and fruitiness as quickly as possible; others, again, like quite the reverse, and for them the opposite plan must be adopted. Moreover, many tricks are played with port wine, in order to hasten its arrival at maturity, such as destroying the colour by charcoal, mixing with perry or cider, &c., &c.; but as these are never worthy the attention of those who intend to drink the contents of their cellars, the less said on the subject the better. The only sound advice to be given to a young housekeeper is, either to purchase his wine of a respectable retail wine merchant, or, if he choose to economise, and can trust to his own judgment or that of a friend, to buy it in the docks as imported.

451. In the Purchase of Foreign Wine there is great room for good management and economy, which often save to the consumer from thirty to fifty per cent., that is to say, without reckoning interest

of money. The wine-merchant with a large capital invested in his stock, naturally and very properly makes his calculation that, from this circumstance alone, his wine should increase in value at least five per cent. every year, so that a vintage which last year could be sold for 50s. per dozen would this year require to be charged 52s. 6d. instead of that sum, and in addition a fair allowance for warehouse-room and other expenses. This is a very usual ground of complaint when a purchaser goes to his wine-merchant and finds this increase of price; but it is a most unreasonable one, and when calmly considered no one could for a moment support it. But if the wine-merchant expects to receive from all his customers the high rate which he charges for merely acting as the broker to the consumer, he will often be disappointed, and he will find that they will take the trouble to go to the docks and select for themselves, where they can taste wines of all classes with just as much facility as in his own counting-house. By a reference to the annexed list of wholesale prices in the docks, and comparing those given at par. 452 with the retail prices, it will appear whether what is here stated is correct, and how far the wine-merchant is right in charging as he does for wine in the wood. The private consumer may remember that it is easy to arrange with three or seven friends to take a pipe or butt between them, and thus divide the risk, and also avoid the inconvenience of overstocking the cellar.

PRICE OF WINE IN BOND.

		£	s.		£	s.
Port, 1st class	per pipe	48	0	to	60	0
2nd and 3rd ditto	,,	32	0	,,	45	0
Light and common	,,	25	0	,,	28	0
Sherry, 1st	per butt	50	0	,,	85	0
2nd and 3rd quality	,,	30	0	,,	45	0
4th and 5th ditto	,,	18	0	,,	22	0
Madeira, E. I., fine	per pipe	60	0	,,	80	0
Middling and common	,,	38	0	,,	42	0
Teneriffe, best old	,,	26	0	,,	28	0
Lisbon	,,	20	0	,,	26	0
Bucellas	,,	28	0	,,	35	0
Marsala	,,	17	0	,,	18	0
Champagne	per 3 doz. case	1	0	,,	3	0
Claret, 1st growth	per hd.	44	0	,,	48	0
2nd and 3rd ditto	,,	34	0	,,	38	0
Inferior qualities	,,	12	0	,,	24	0
Hock	,,	18	0	,,	44	0
Cape Madeira, best	per pipe	16	0	,,	17	0
2nd and 3rd quality	,,	14	10	,,	60	0
Spanish red wine	,,	10	0	,,	60	0

452. A Pipe of Port or Masdeu Wine contains from 110 to 115 gallons, and will fill, on the average, about fifty-three dozen of bottles, supposing them to run six to the gallon, which is the average capacity of those used in private houses, and by the most respectable wine-merchants. In many cases, however, there are more than six to the gallon, which will materially affect the calculation. The pipe of Madeira or Cape is only ninety-two gallons; of Marsala or Bronte, ninety-three; of Canary or Sack, 100; of Mountain or Malaga, 105. The Butt of Sherry is considered to be 108 gallons, and should fill about fifty dozen of white-wine bottles, which are a trifle larger than those for port. In like manner the theoretical hogshead is sixty gallons, but that measure of Claret or Burgundy is only forty-six gallons. Hock and Moselle, when imported in the wood, are measured by the *aum* of thirty gallons.

453. The following are the Average Retail Prices of Wines and Spirits, in the present year, 1856:—

	Per dozen of six to the gallon.
Old port	36s. 42s. and 48 0
Old beeswing port	48 0
White port, very select	60 0
Gordon's golden and pale sherries	30s. 36s. and 42 0
Manzanilla and Amontillado...	48s. and 60 0
Claret, St. Julien...	30 0
Ditto, St. Esteppe	36 0
Ditto, la rose	42 0
Ditto, Leoville and Latour	48s. and 54 0
Ditto, Margaux...	60 0
Ditto, Lafitte	72 0
Sauterne	48 0
Hock and Moselle	36s. and 48 0
Ditto, sparkling	60s. 72s. and 84 0
Rudesheimer, Steinberger, Johannesberger, and Leibfraumiter ...	60 0
Sparkling champagne	48s. 60s. and 72 0
Old pale Cognac brandy...	66 0
British brandy	22 6
Rum...	00 0
Whisky	36 0
Gin	25s. to 27 0
Proof spirit, per gal.	11s. to 12 0

454. The Duty on foreign wine is 5s. 6d. per gallon, and 5 per cent. in addition, which will make it as near as need be 1s. per bottle, of six to the gallon. Cape wine, being of British growth, pays only 2s. 9d. per gallon, plus 5 per cent.

455. Foreign Wines are chiefly imported into London, but Gloucester, Bristol, and Liverpool also transact a small share of this trade.

The London and St. Katharine's Docks are the chief seats of the bonded warehouses, where the wines are stored until they pay the duty imposed by the excise laws. The wine being consigned from Oporto, Cadiz, or any other port, is unloaded from the ship in which it has come over in one or other of the docks, and is then conveyed on a tramway at once to the vaults beneath the warehouse, where it is left to be examined and tasted. For this purpose the importers, or their agents, give a "tasting order" to any person who is likely to be a customer, which requires the wine-coopers attached to the particular vault where the wine lies, to draw a sample or samples for trial. When this order is given by a large owner or broker, the possessor of it may easily go on tasting until he loses all perception of the difference between sherry and port. In the East Vault of the London Docks there is an area of twelve acres of wine, and often the order extends to a large portion of this enormous extent of fermented liquors. The order is first presented at the counting-house, where it is examined and ratified, and its holder is then placed under the care of a cooper, who proceeds to conduct him below. A gimlet and a glass, with a peg to close the hole, constitute the simple apparatus for effecting "the taste," and one after the other each cask is tapped till the taster is satisfied. Each cask has a particular "brand," so that when he fixes upon the object of his choice, he has only to note the brand, and there is no difficulty in identifying it. The fumes of alcohol are so strong in these vaults, that, even without swallowing any wine, the head is often turned after remaining in them for a short time. It is usual among large purchasers and tasters to avoid swallowing any wine, and to confine the taste to a roll of the fluid round the mouth, finishing by ejecting it. This is done in an artistic way by the true connoisseur, which the uninitiated will in vain attempt to imitate.

456. Home-made Wines, being chiefly of domestic manufacture, will be better described in the next chapter. Many of them are, however, now made on the wholesale scale, and also imitations of port and sherry for the use of small country public-houses, and even private families; but the imitations are very poor in flavour, and exceedingly unwholesome; nevertheless, the name occasions them to be sought after, and passed off, perhaps as the genuine article, upon those who do not know better. Some kinds, as ginger, rhubarb, or raisin wine, are sold of a very superior character; but the majority are not to be compared with the average run of the real home-made wines met with throughout the kingdom.

457. Liqueurs are now extensively introduced into use among those who indulge in dinner parties to any extent. They are intermediate between the foreign sweet wines and spirits, and are made with a foundation of some fermented spirit, as rum, gin, whisky, or brandy, mixed with certain flavouring matter, such as pine-apple, peach-kernels, &c. Every year, and almost every month, some new variety is brought out, and is introduced after dinner as a desirable means of digesting it; but the reverse is really the case—the dinner in fact aids the liqueur more than the latter serves to assist the dinner. It is therefore unnecessary to do more than merely enumerate this class of drinks, which never ought to enter largely into the expenses of the prudent manager of a household. At present they comprise the following list:—Cherry-brandy, usquebaugh, maraschino, clove liqueur, orange liqueur, parfait-amour, crême de rose, crême de café, badiane, liqueur au bouquet, Rossolis, milk punch, curaçoa, noyau, nectar, and shrubs of various kinds; also, cordials of various sorts, as, citron, cinnamon, ginger, &c. The receipts for some of these are given in the next chapter.

458. Spirituous Liquors, Spirits, or Ardent Spirits, which are merely different names for the same thing, are the result of the distillation of some kind of fermented liquor. Thus *Cognac* or *French brandy* is distilled from the juice of the grape, *rum* from the fermented juice of the sugar-cane; *gin*, *whisky*, and *British brandy* from infusions of malt, oats, or barley, sometimes mixed with potatoes or carrots. *Arrack*, distilled from rice, is not used in this country at all, nor are any other ardent spirits, except pure alcohol, more or less mixed with distilled water, and sold under the name of *spirits of wine*. This is generally of the strength called *proof spirit*, which is ordered by the excise laws to have a specific gravity at sixty degrees of 0·9198, and should contain about one-half distilled water, or strictly speaking, 49¼ per cent. by weight of real alcohol.

459. Alcohol is the base of all ardent spirits, the difference only consisting in the admixture of volatile oil or flavouring matter of some kind, and in some cases of colouring matter added to suit the market, as in the dark brandies and rums. The formation of alcohol by fermentation has already been described in par. 384; but in order to procure it in a separate state from the woody matter, tannin, and salt, &c., with which it is mixed, recourse is had to the still, which acts by means of heat in causing the alcohol to evaporate, and then with the aid of a long tube exposed to cold water in a vessel through which it

is coiled, the vapour is condensed and collected at its extremity. In *fig.* 85, such an apparatus is shown, being of the most simple construction, but sufficient for all practical purposes: A is the vessel or boiler in which the fermented liquor is placed, and heated by the fire beneath; B is the head of the still, dropped on at the joint, and luted with paper covered with flour and water; C is a long pipe of metal or earthenware, which is convoluted, and passed through a vessel of water (D D), until it finally emerges at E, where the spirit appears, and is collected. When a spirit is thus distilled from fermented liquor, it is very weak, being largely diluted with water, which comes over with it; but by a second distillation at a lower temperature, and by collecting only the first products, a much stronger alcohol is obtained, though in this way the whole of the water cannot be removed. The strongest rectified spirit has a density of about 0·835, and yet contains thirteen or fourteen per cent. of water, and in order to obtain pure alcohol it must be redistilled with half its weight of fresh quicklime. The lime is coarsely powdered and put into the retort, and upon it is poured the alcohol, which is to be thoroughly mixed by agitation, and left for several days with the mouth closed. At the end of that time the pure alcohol is distilled over by the heat of a water-bath, the lime having such an affinity for the water with which it forms a hydrate that it will not part with it, and the alcohol is perfectly free from it. Pure alcohol is a colourless, limpid fluid, of a pungent but pleasant taste and odour. Specific gravity at sixty degrees, 0·7938. It is very inflammable; presenting a pale-bluish flame, free from smoke. It never freezes, and boils at 173 degrees. When diluted with water the boiling point is higher, in proportion to the quantity present. The act of dilution causes the evolution of heat, and a contraction of bulk, so that when mixed together in the proportion of a pint of each, the mixture does not measure a full quart. Alcohol, whether pure or mixed, has a great affinity for water, and absorbs it from the atmosphere, or through animal membranes. Its solvent powers are considerable, the alkalies, and especially potassa, forming compounds with it. The vegeto-alkalies, resins, essential oils, and numerous other bodies, all submit to its powers, and hence it is a valuable aid in all chemical and manufacturing operations requiring a strong solvent of these substances.

French Brandy.

460. French brandy is distilled from the juice of the grape only, the flavour depending upon the essential oil contained in the fruit and

fruit-stalk. The best is made in Cognac, which has therefore given its name to the French brandy in general, though large quantities are also made in other parts—as Bordeaux, Rochelle, &c. The wine used is generally that from inferior grapes, which are not likely to make good wine; and it is distilled as soon as the fermentation has passed through the stage of development which produces alcohol, and before any amount of acetous fermentation has commenced. The quality depends chiefly upon the grape-juice and the care taken in its fermentation. In its natural state it is of a very pale colour, almost like water, and in this condition a great quantity is consumed in France, but some is more or less artificially coloured. For the British market almost all is coloured with burnt sugar, two shades being adopted, one called *pale brandy*, the other *brown brandy*.

Rum.

461. Rum is obtained in a similar manner, as regards the distillation, but the liquor from which it is drawn is made of molasses, and the skimmings of the hot cane-juice which rise to the surface in the manufacture of the sugar. These are mixed with water and fermented with a little of the lees of former similar fermentations, by which the whole is converted into an alcoholic liquor, from which the rum is distilled in the manner above described. A good deal of acetic acid is generally developed, and passes over with the spirit, but this in process of time is absorbed by the wood of the casks, and age therefore is required in order to make rum either palatable or wholesome. Rum is made almost entirely in the West Indies, and chiefly for the use of the navy—comparatively little being imported into this country for any other consumption.

462. Good Rum is of a clear brown, the taste is soft and mellow, and the effects on the body very manifest, but not followed by any ill-consequence. Bad rum, on the contrary, is harsh and hot in the mouth; limpid and devoid of much colour, though some of it is artificially coloured with burnt sugar, &c. The strength of rum is very considerable, it containing on the average about 53 per cent. of alcohol.

Corn Spirit.

463. Corn Spirit is distilled from an infusion of malt sometimes mixed with raw grain. In either case the flour is converted into starch before fermentation: in the former by germination, and in the

latter by contact with the malt. The mashing and fermentation are conducted upon similar principles to those mentioned at par. 414, and then the alcohol with a large portion of water is drawn off, and again distilled or rectified to attain a greater strength. This spirit is called malt spirit, and from it the manufacturer either distils gin, or whisky, or Hollands, British brandy, or spirits of wine.

Gin.

464. Gin, which is the spirit chiefly used in London, is produced in great measure from barley alone, with the substitution of wheat, oats, rye, or Indian-meal, when the price of any one is below that of barley, taking into consideration the relative power of each in producing spirit. The corn is ground, and it is then mashed in the usual way, and distilled two or three times over; but the rectifier must be a distinct person from the distiller, according to the excise laws. The distillers are generally very large manufacturers, but the rectifiers often conduct their business on a limited scale, buying the proof spirit of malt, and making it up in the course of its rectification so as to convert it into gin, London gin, cordial gin, British brandy, or any other similar compound. Whisky, the spirit commonly drunk in Ireland and Scotland, is distilled direct from the fermented liquor produced from malt and water, the flavour being communicated by the smoke of the fuel which is used. It is stronger than gin, and nearly equal to proof. The Scotch whisky distillers are said to obtain twelve gallons of whisky from six bushels of malt. Gin and Hollands are flavoured with juniper berries, the former being frequently made up with turpentine instead, either alone or mixed with a certain proportion of juniper. Whisky, as being the most pure, is the most wholesome of these spirits, and nearly equal to Cognac, which is by far the best stimulant we have. British brandy is made up with burnt sugar, and other flavouring materials, but is nothing but corn-spirit, however palatable it may be made. It is not to be compared, in point of stomachic power, with the real imported article, which should always be obtained for any purpose requiring its invigorating power.

465. The Quantity of Spirits consumed in Great Britain is enormous, the home consumption in the year 1854 being, for the three kingdoms, nearly thirty-one millions of gallons, which, divided among twenty-nine millions of inhabitants, gives rather more than a gallon of spirit per head per annum, over and above the smuggled and illicit spirits, and other fermented liquors, as wine, ale, porter, and

cider—from which if the alcohol were extracted, it would probably give at least three gallons per head per annum more.

466. The Adulteration of Wines and Spirits is carried on to a fearful extent, and chiefly with substances that defy detection by chemical or microscopical demonstration. One single fact is sufficient to show the amount of this illicit trade. Every one knows, from practical experience, that the quantity of champagne drunk in England has increased in the last twenty years at least tenfold, yet from a statement of the Chancellor of the Exchequer, recently made in the House of Commons, it appears that *the imports of it are the same now as they were twenty years ago*, consequently the whole of the increase must be factitious, and not even imported as champagne. It must therefore be made up in this country from other foreign wines, aided by cider, sugar of lead, and a variety of flavouring materials which chemistry places in the hands of the unprincipled. The whole quantity of sherry annually exported from Xeres to all parts of the world, does not exceed 25,000 butts, of which a large proportion goes to America; and as the demand is immensely greater than can be supplied from this limited source, it is made up by shipping the wines of Malaga as sherries, previously bringing them round to Cadiz, and thence re-shipping them. This, however, is a venial fraud, compared to the absolute manufactures which are every day going on in this country, as proved before the late committee of the House of Commons. Spirits also are made up to a frightful extent; and, in the case of gin, with the most poisonous compounds, such as superacetate of lead and spirits of turpentine, which are extensively employed. Among the liqueurs the same mischievous tricks are played; and it is stated, that more than three-fourths of the wines and spirits sold in England are tampered with in some way or other, besides the alteration of colour, by addition and subtraction, which are constantly practised as a matter of course.

467. The Comparative Strength of the various kinds of spirit is given at par. 448.

468. The Prices of the more common kinds are inserted in the list of wines and spirits at pages 193, 194.

Sect. 4.—Unfermented Liquors.

469. Unfermented Liquors are every year gaining more hold on the lower classes of the British public, which is a fact of the greatest importance, as showing that the national vice of drunkenness is gradually

leaving them. Of these the chief are ginger-beer, lemonade, soda-water, potash-water, Carrara-water, orangeade, sherbet, currant-water, raspberry-water, whey. Receipts for these will be found in the next chapter; but as, with the exception of soda-water, they are much better when made at home, and also cheaper, my readers are advised to have recourse to that expedient in procuring them. Ginger-beer is sold in large quantities at 1d. per bottle, which is as cheap as it can be made, but the quality is generally bad, and the effect upon the stomach by no means what is expected. Soda-water requires an apparatus for its development, in order to force the carbonic acid gas into it; but even that is now supplied at a price which brings it within the reach of most people. Still I am ready to admit that the soda-water so made is not equal to the average of those offered to the public by Schweppe and a few others. In every case about five grains of carbonate of soda or potash are dissolved in each bottle of water, and into this quantity several cubic inches of carbonic acid gas are forced by an air-pump, or in the machine by the mere force of its development from the decomposition of one of its salts. Lemonade is made to effervesce in the same way; but the juice used is too often not pure, but adulterated with sulphuric or tartaric acid. Most of these cooling drinks are sold at prices varying from 3d. to 6d. per bottle.

CHAPTER XV.—CHANDLERY AND COALS.

Sect. 1.—Lighting Materials.

470. Under the head of lighting, as bearing upon the construction of houses, the articles used for the purpose are minutely described under the chapter of "The House" treating of "lighting." All those mentioned in that chapter, except gas, are sold by the chandler; but as the prices and qualities of each are there fully detailed, it will be unnecessary to repeat them here, except in a general list of chandlery-goods, which may be found convenient, and is therefore given at the end of this section. In the country these articles are often sold in what are called the general shops, together with groceries and the contents of the London Italian warehouses.

Sect. 2.—Heating Materials.

471. These, also, are alluded to in the chapter on warming and ventilation. Coals and coke are generally sold by the coal-merchant,

except in small quantities retailed to the poorer classes at an enormous increase of price. In the above-mentioned chapter the varieties of fuel are described in all respects except prices, which in London are somewhat above the average of England, but not to any great extent.

Seaborne Coal.

472. The wholesale price of Seaborne Coal in London is now from 14s. to 17s. 6d. per ton, which, with 8s. for delivery and dues, makes the price to the consumer about 22s. to 25s. 6d. per ton. Inland coals, by retail, are from 18s. per ton, delivered, to 23s.; Welsh anthracite, 24s.; and small coal, 13s. per ton. Silkstone is sold at present for 21s.; and I believe the best quality of house-coal may be purchased, to be delivered anywhere within five miles of the centre of London, for 23s. per ton. The name and qualities of the various coals are too numerous to require minute description, and the consumer will gain nothing by the enumeration, as he cannot be expected to know, without great practice, one from the other.

Firewood.

473. Firewood is another important item, especially in London and the larger cities and towns. Patent firewood and patent fuel are now very generally used for lighting fires, and the former may be obtained at the rate of four pieces for a penny, each of which serves to light one fire. This kind, therefore, may be considered as economical as any, excepting in the country, where wood is comparatively cheap, and where straw or shavings are readily obtained to make the initiatory blaze. Wherever these cannot readily and cheaply be procured, the patent fire-lighter is the best for all purposes.

Coke.

474. Coke forms an excellent aid to the cook's fire, or even for those of the sitting-room, if added on the top of a good coal fire. It is sold at from 10s. to 12s. per chaldron.

Lucifer-matches.

475. Lucifer-matches are made in enormous quantities, for giving an instantaneous light, and at prices which to our forefathers would have appeared incredibly small. Phosphorus is the chief material used for the cheaper kinds, but as this requires the intervention of sulphur in order to light the strip of deal to which it is fixed, it is not

suited to the drawing or bed room. In the present day a very elegant match, with a body of wax and cotton, is manufactured for use in these rooms, and, as no sulphur is applied, the effect is not unpleasant. They are sold at all prices, from 1d. to 6d. per hundred; those at 3d. being really very useful and pleasant matches. The common kitchen match with sulphur and phosphorus ends, is quite sufficient for the purposes of the cook, and sold at the rate of a halfpenny per hundred, including the box, so that the old flint-and-steel tinder-box is entirely superseded.

Sect. 3.—Cleansing Materials.

Soap.

476. Soap stands at the head of this list as the most generally useful, and indeed is constantly required in a great number of domestic operations. It may be divided into *yellow soap*, *white* or *curd soap*, *soft-soap* and *scented soap*. All soap is a compound in definite proportions of some oil, fat, or resin, with a saponifying base, which must be alkaline if it is intended to use the soap for cleansing purposes, inasmuch as the compounds with metallic oxides, lime, and acids are insoluble in water. Fats are composed of a solid substance called *stearine*, and a liquid one denominated *elaine*. When either of these is boiled with a strong solution of caustic potash or soda, a remarkable change takes place, called *saponification*. The product is a viscid homogeneous and transparent mass, freely soluble in warm water, and partially so in cold, but insoluble in saline solutions. When any common fat is treated with a hot ley of potash or soda, a solid pearly matter, *margaric acid*, and a fluid, *oleic acid*, enter into combination with the alkali, while a third matter, the *glycerine*, or sweet principle, as it used to be called, remains free and dissolved in the mother-liquor. Common soap is a mixture of an alkaline margarate and oleate, in proportions varying with the peculiar kind of fat employed. Soap formed with vegetable oil is chiefly an oleate, whilst that made with tallow is, on the contrary, almost entirely a margarate. All fats do not saponify equally well, the best being oil of olives and almonds, next to which rank in the order in which they are enumerated—hog's-lard and tallow, colza oil, poppy oil, fish oils, hempseed oil, linseed oil, palm oil, and resin.

477. The following are the qualities of soap:—The specific gravity is somewhat greater than water, taste slightly alkaline. When heated it speedily fuses, swells up, and is then decomposed. Dried in thin slices, it becomes hard, but the whole combined water does not leave

it even by careful desiccation in a sand-bath. It is much more soluble in hot than in cold water, and the solution is constantly affected by the greater number of acids which seize on the alkali, and either separate the fatty particles, or unite with them to form a soapy emulsion. It is also decomposed by almost all the earthy and metallic salts, which give rise to insoluble compounds of fhe oleic and margaric acids, with the salifiable bases. Soap is soluble in cold alcohol, and to a still greater extent by the aid of heat. When a saturated solution of soap in boiling alcohol is cooled, a transparent mass of a yellowish-brown colour is produced, which retains its transparency when dry, if the soap was made from tallow and soda.

478. The Art of Soap-making consists principally in determining from the appearance of the fats, and other circumstances, what kind of lixivium should be employed during each step of the operation, which therefore requires great experience, and considerable powers of observation. The form and size of the bubbles, the colour of the paste, the volume of the material thrown out on the side of the vessel, the consistence of the matter, and its disposition to swell, also the appearance of the steam, all furnish criteria by which to regulate the process. It sometimes happens that the paste, though to all appearance very firm, when set in the cold air to harden, throws out a quantity of water, and resolves itself into small grains possessing little consistency. When this is the case, it is evident that there is too great a proportion of ley, which must then be separated by means of common salt. Frequently, also, the paste becomes greasy, and the oil appears to separate from the soda. As this generally occurs when there is not a sufficient quantity of water mixed with the paste to keep it in combination, it will be found necessary to remedy this defect by adding to it a little more water, or weak lixivium. Potash is employed as follows, in the manufacture of hard soap:—A ley of this alkali rendered caustic by quicklime, is used in the saponification, and to the soft soap which is the result, is added common salt, or a kelp ley, by which an abundance of muriate of soda is supplied. The muriatic acid is attracted by the potash, and forms muriate of potash, which dissolves in the water, and is drawn off in the spent ley, while the soda combines with the fat to form a soap, which when cool becomes perfectly solid. Two tons of tallow, properly saponified, ought to yield three tons of marketable white soap.

479. Besides the common white soap described above, two more costly kinds are made under the names of Marseilles white soap and

Castile soap. These are now imitated to great perfection by the English manufacturers, who adopt the following proportions, viz.:—

MARSEILLES WHITE SOAP.

	lb.
Soda	6
Olive oil	60
Water	34
	100

CASTILE SOAP.

Soda	9
Olive oil (carefully prepared)	76½
Water and colouring matter	14½
	100

SOFT SOAP.

480. Soft Soap is a compound of potash and fat or oil. Three kinds are known in commerce, viz., *common soft soap*, which is made with coarse fish oil; *green soap*, made with vegetable oils, such as rape and poppy oil; and *white soft soap*, the produce of the mixture of potash and tallow. In the manufacture of the common and green soaps, the art consists in the combination of the oil with the potash without the soap ceasing to be dissolved in the ley; while, on the contrary, in the fabrication of hard soap, it is necessary to separate the soap from the ley, even before the saturation of the ley is accomplished. But soft soap contains more alkali than is absolutely necessary for the saponification of the oily matter, and is really a perfect soap dissolved in an alkaline mother-liquor. It may readily be converted into hard soap by the addition of common salt.

TOILET SOAPS.

481. Toilet Soaps are made with hog's-lard, oil of almonds, nut oil, palm oil, or suet, saponified either with soda or potash, according as they are desired to be hard or soft, and with as little excess of alkali as possible. Glycerine is now artificially combined with these soaps, instead of being wholly removed in the mother-liquor; but the process is a difficult one, and it is even said to be impossible. Honey has been used for the same purpose, that is, to soften the skin; but there is no doubt that if glycerine can really be incorporated with the soap, it ought to exert a very moliifying effect upon the skin, if it remains in the condition of pure glycerine as obtained in the usual way.

482. SOAPS of all kinds are said to improve by keeping—that is, they become more hard and dry, and do not so readily dissolve. The

object is attained as far as the saving in soap is concerned, but as the cleansing is generally in proportion to the amount used, it does not quite appear an unmixed good. In washing, three things are to be attended to—1st, the perfect purification of the material; 2nd, the avoidance of injury to its texture or colour; and, 3rd, the saving of expense in materials and labour. The last of these is the element which is chiefly called into play in keeping soap, and in fact only the first section of it; for the older the soap, the more labour is occupied in rubbing it off and dissolving it, and the more friction must be given to the material, and if these are omitted the less perfectly will it be purified. Nevertheless it is always held by good managers that soap ought to be kept, and I confess that I am not able to dispute their dictum, though I cannot theoretically understand its force.

483. The Adulterations which are most commonly practised on soap are the following:—When the soap is made it is rendered heavy by the addition of a large quantity of water; frequently, also, pulverized lime, gypsum, or pipe-clay, are incorporated with it. The first of these frauds is easily detected by the rapid loss of weight which the soap suffers after exposure to a dry air; the second is also not difficult of detection by solution in alcohol, when the earthy matters separate and fall to the bottom, and may at once be collected and examined.

484. The Price of Soap varies greatly according to the quality, and the existing value of tallow, oil, soda, and potash. Yellow soap being that which is chiefly used in the operations of the laundry, is the kind which mainly affects domestic economical calculations, though in a large family the toilet soaps form an important item of yearly expenditure. At the present time yellow soap is sold at prices varying from 32s. to 48s. per cwt.; mottled soap (which is much used for the skins of children), 50s. per cwt.; and the various toilet soaps at 1s. 4d. to 2s. per packet of twelve cakes, or from 8d. to 1s. per lb.

Starch.

485. Starch comes next to soap in utility, being, it is true, not so much used for cleaning as for the prevention of dirt, the glazed surface produced by it being a great protection against that foe to domestic comfort. It consists of very minute oval-shaped granules, easily distinguished by the microscope, and dissolving readily in boiling water, to form a jelly, in which state it is made use of by the laundress (see chapter on Washing, in the next book).

486. Several Vegetable Substances are employed to give us their starch, the chief being wheat, rice, and potatoes. *Wheat starch* is made by soaking wheat in cold water until the husk readily separates, and the grains have become full of milky matter, which is the farina softened in water. The whole mass of wheat thus softened is now subjected to pressure, by which means the milky fluid flows out, and is collected. This is suffered to stand for some days, when a slight fermentation takes place, by which the gluten is decomposed and converted into acetic acid and alcohol, while the starch remains undissolved. It now only requires to be well washed from the sour liquor in which it is contained; and, as it is not soluble in cold water, this is readily effected, after which it is made into a paste, slightly coloured with blue, and heated in an oven until it cracks into those semi-crystalline masses in which it is sold to the public. *Rice starch* is made much in the same way, but containing little or no gluten, there is much less difficulty in getting the starch in a state of purity. *Potato starch* is made by grating raw potatoes into a vessel full of clear water, and, after stirring it well, allowing the fecula to subside; the water is then to be poured off, and fresh water added, and, by repeating which two or three times, the starch remains behind in a state of purity. It is not, however, so well adapted to the purposes of the laundry as wheat starch.

487. The Price of Starch is from 4d. to 6d. per lb.

Potash or Pearlash.

488. Potash or Pearlash is largely used in washing to aid the soap in removing grease from the articles to be cleansed. It would appear, that as soap is composed of soda or potash, combined with oily matter, it would answer better to use the alkali alone, as the grease in the clothes would combine with it, and at once become soluble; but it is found by experience that this is not the case, and that as there are many substances of a dirty nature which are not greasy, soap must be used to a considerable extent, aided, however, by free alkali, in order to combine with the grease really met with. Hence it is that pearlash has for many years been used as an adjunct to soap; and in the present day the numerous receipts sold in its place are patronized by all classes—as, for instance, Green's patent washing-powder (made at West Bromwich, which is the best of the kind), Manby's cleansing crystal, &c., all of which depend upon alkali in some form for their

efficacy in cleansing foul linen. Pearlash is obtained from calcining potash, and then re-dissolving, filtering, and crystallizing. Potash is the soluble salt remaining after calcining certain plants, the ashes being collected and a ley made from them with water, which is afterwards poured off and evaporated. It is imported chiefly from America and Russia, the price being about ten shillings per cwt., or sixpence to eightpence per lb. by retail.

Soda or Bi-carbonate of Soda.

489. Soda, or Bi-carbonate of Soda, as it is properly called, is also used in washing, and for many similar purposes. It was formerly obtained by burning kelp, and imported as barilla, which is an impure carbonate of soda; but it is now extensively manufactured in this country by the decomposition of common salt (chloride of sodium). Extensive manufactories are in existence in the neighbourhood of the saline springs of Cheshire and Worcestershire, which convert large quantities of common salt into the useful substance here alluded to, so that the price has been brought down from seven shillings per lb. to little more than that sum per cwt.

Powder-blue and Stone-blue.

490. Powder-blue and Stone-blue are merely colouring materials, introduced into the laundry to give linen a hue which is as far opposed as possible to the yellow stain peculiar to confined situations and dirty habits. *Powder-blue* is chiefly obtained from smalt, mixed up with a very little starch; smalt being cobalt roasted and melted with twice its weight of sand and an equal weight of potash. *Stone-blue* is merely indigo reduced by adding starch or whiting.

Blacklead.

491. Blacklead is a carburet of iron, and for domestic purposes is used to give a polish to iron grates, and similar surfaces. It is found in mines, and consists of ninety-two parts of iron and eight of charcoal. The coarse qualities suited to this purpose are sold at from ten shillings to twelve shillings per cwt.; by retail, 6d. per lb.

Various Sands and Sandpapers.

492. Various Sands and Sandpapers are sold for making the surfaces of metal bright by friction. Sharp sea-sand is used of various degrees of fineness, also powdered pumicestone. Powdered glass, as well as

sand, are glued on to cartridge-paper, and make the sandpaper and glasspaper of the shops.

Bricks and Scouring Stones.

493. Bricks and Scouring Stones are sold at the oil-shop, the former for cleaning knives, for which they are specially made, containing a large proportion of *sharp* sand. The stone for cleaning flags is a limestone obtained from the nearest suitable locality, and sold at per lump.

Rottenstone.

494. Rottenstone is an earth of an ash-brown colour, very light, moderately hard, dry, and useful as a polishing powder.

Fuller's Earth.

495. Fuller's Earth is of a greyish-brown colour, hard, compact, and rough, but scrapes with a polished surface. When scraped, the powder is very fine, and absorbs grease very readily, so that it is used for that purpose.

Emery.

496. Emery is a natural stone, powdered or ground in mills, and sorted into different degrees of fineness, by being suspended in water and the liquor drawn off after a determined number of minutes, so that the finer kinds are first obtained, then the coarser, and lastly the coarsest. It is used both as a powder and glued on paper in the same way as sandpaper.

Crocus-powder.

497. Crocus-powder is made by calcining sulphate of iron and salt. When intended for fine polishing, it is mixed with soap. Jeweller's Rouge is a variety of the same salt, but precipitated from a solution of sulphate of iron in water, by adding carbonate of potash.

Olive Oil and Linseed Oil.

498. Olive Oil and Linseed Oil are also used for cleaning purposes; but they have been already alluded to under the chapter on lighting, at page 201

499. RETAIL PRICES OF CHANDLERY:—

		s.	d.		s.	d.
Wax candles	per lb.	2	0	to	2	6
Sperm	,,	1	10	,,	2	0
Belmont, wax and sperm, per lb.	,,	0	0	,,	1	0
Price's best composite, per lb.	,,	0	0	,,	0	10
Ditto composite,	per lb.	0	0	,,	0	9
Fontaine's composite	,,	0	7½	,,	0	10
Palmer's magnums	,,	0	0	,,	0	9
Ditto metallic wicks	,,	0	0	,,	0	8
Ditto palm candles	,,	0	0	,,	0	7½
Tallow moulds	,,	0	6	,,	0	7½
Price's or Child's night lights, 12 to the box,	per box	0	0	,,	0	6
Sperm oil	per gallon	11	6	,,	12	6
White seal oil	,,	4	8	,,	4	10
French colza oil	,,	0	0	,,	4	8
Solar oil	,,	0	0	,,	4	8
Cocoa-nut oil	,,	0	0	,,	4	6
New Florence oil	,,	9	0	,,	12	0
Florence oil, per flask		0	9	,,	1	6
Vinegar, per gallon		1	2	,,	2	8
Good yellow soap,	per cwt.	32	0	,,	48	0
Palm soap	,,	27	0	,,	30	0
Curd soap	,,	56	0	,,	58	0
Fancy soaps	per lb.	0	8	,,	1	0
Pure Scotch soda	,,	0	6	,,	0	8
Best wheat starch	,,	0	0	,,	0	5
Berger's patent rice starch, per lb.	,,	0	0	,,	0	5
Glenfield ditto, per lb., in packets	,,	0	0	,,	0	8
Stone-blue, per lb.		1	0	,,	1	4
Blacklead		0	0	,,	0	6
Blacking, Day and Martin's per dozen		0	0	,,	4	6
Ditto Warren's	per doz.	0	0	,,	3	6
Blacking in skins	,,	0	0	,,	0	4
Emery cloths,	per sheet	0	0	,,	0	0¾
Glass paper	,,	0	0	,,	0	0½
Washing powder	per pkt.	0	0	,,	0	0¾
Chloride of lime	per lb.	0	0	,,	0	3

CHAPTER XVI.—WASHING OUT.

500. This forms a very important item in the expenditure of a family, and in many cases it is a serious subject of discussion, whether the linen shall be washed out or at home. No one would willingly encounter all the disagreeables of a washing-day, and therefore if it were possible to obtain the services of a regular laundress out of the house, on any thing like the same terms as at home, many masters, and mistresses too, would avoid a great deal of discomfort. But as this is not the case, those who cannot afford this luxury, or who have not the necessary premises, &c., for washing at home, must incur the expenditure, whether large or small. The details of the laundry will be found under that head in the next chapter, and all that is necessary here is

the best mode of dealing with that impracticable person, the laundress. There are three or four modes of conducting the bargain, viz., *to wash by the year*, including every thing; *by the piece*, at a stated tariff; *by the dozen*, including every thing; and lastly, *by a mixture of these plans*—that is to say, partly by the year and partly by the piece, or partly by the piece and partly by the dozen.

Washing by the Year.

501. In washing by the year, it is usual to calculate the whole amount under their separate heads of house-linen, family body-linen, and servants' linen. The house-linen and servants' linen, in the families of the middling classes, are generally taken at £5 each, and the body-linen of the family at £5 per head, so that with a household of six inmates and two servants the whole will amount to £40. In some parts of London the rate is somewhat higher than this, and in the country also a little lower, but this may be taken as the average in all urban populations, except the most fashionable parts of London.

Washing by the Piece.

502. Washing by the piece is the most satisfactory mode of washing, when the prices are fixed on a proper scale; but laundresses are too apt—when they get hold of an employer who is inexperienced—to increase the price to a rate which will bring the sum total up to an enormous amount. The following are the average rates in London and provincial towns:—

	s.	d.
Counterpanes, each	1	6
Sheets, per pair	0	6
Servants' ditto	0	4
Pillow-cases	0	1
Blankets, each	9d. to 1	0
Towel	0	0½
Window-blind	0	1
Toilet cover	0	1
Table-cloth	0	3
Ditto, large	0	4
Table napkin	0	1
Kitchen cloths, tray cloths, dusters, &c., at per doz.	0	9
Couvrette	0	1
Gentleman's shirts, each	3d. to 0	6
Ditto night-shirts	0	3
Ditto nightcap	0	0½
Ditto collar	0	0½
Ditto drawers	0	2
Ditto stockings	0	1
Ditto handkerchief	0	0½
Ditto flannel waistcoat	0	2

			s.	d.
Lady's muslin dress...	6d.	to	1	0
Ditto dressing-gown	6d.	to	1	0
Ditto collar...			0	2
Ditto sleeves, per pair			0	2
Ditto handkerchief			0	0½
Ditto frills			0	1
Ditto habit-shirt, without collar			0	1
Ditto petticoat			0	3
Ditto ditto body			0	1
Ditto chemise			0	2
Ditto drawers			0	2
Ditto stockings			0	1
Ditto nightgown			0	3
Ditto nightcaps ... ... 1½d.	to		0	3
Ditto flannel petticoat			0	2

Children's things are generally charged by the dozen, until they are eight or ten years of age, when they are charged as above. The price per dozen will be found in the next paragraph.

Washing by the Dozen.

503. Washing by the dozen is charged 1s. per dozen, exclusive of counterpanes, blankets, sheets, large table-cloths, and gentlemen's shirts. When these are included, the price is raised about 3d. a dozen, but few washerwomen like to undertake the contract, as there is no limit to the number which may be imposed upon them. Infants' things are charged 9d. per dozen, except frocks and pelisses, which are from 3d. to 6d. each.

504. The most usual plan is to compound for the housemaid's cloths and kitchen linen, and servants' linen; the former at 9d. per dozen, or 15s. per quarter; and the latter at 10s. per head per quarter, if they are confined to one cotton dress per week; or if allowed two, 12s. per quarter. Over and above these articles, there is not much trouble in setting down all the bed, table, and family linen, and charging it at per piece, according to the annexed or a somewhat similar scale. In this way it will not, with moderate care, amount to quite so much as if contracted for at the annual rate mentioned in par. 501.

CHAPTER XVII.—DRESS.

505. Female Dress is a constant source of domestic jars, inasmuch as the master is not always aware of the necessary expenditure, and, in some cases, even if he knows it, he is not inclined to allow it. It is

quite true that he is often imposed on, but it is also the case that he often grumbles at, or refuses to pay for, what is really required to make a proper and respectable appearance. Many ladies are not contented without a constant change, and will not appear in the same dress for many successive days. This is all very consistent with a long purse, and the taste may be gratified by those who possess it, but those who have limited means, and perhaps a large family, are not expected to appear in as great a variety of exterior as the flowers of the succeeding seasons. At all events, it is not a part of domestic economy to enlarge upon such a gratification of taste, which is more fit for the pages of a book of fashions; and all that will be here attempted will be the best and cheapest method of effecting what is necessary. *Ladies' dress* may be considered under the three heads of *body and fine linen*, *in-door dresses*, and *out-door dress*.

LINEN.

506. Body and Fine Linen are generally best made by purchasing the materials and making them up at home, with or without assistance. In the country, where it is often desirable to find employment for the poorer classes, and where the charges are very moderate, the linen is made up by those of the villagers who can sew neatly; but in London, where the charge for every thing in the way of work is high, it is no economy to "put out" the sewing. The prices for making are as follows:—

COUNTRY PRICES.

	s. d.	s. d.
Petticoats, each	2 0 to	2 6
Night-dresses ,, ...	1 3 ,,	1 9
Chemises ,, ...	0 10 ,,	1 2
Pair of drawers	0 8 ,,	1 0

TOWN PRICES.

	s. d.	s. d.
Petticoats, each	2 6 to	4 0
Night-dresses ,, ...	1 6 ,,	3 0
Chemises ,, ...	1 0 ,,	2 0
Pair of drawers	0 10 ,,	1 6

Of course, in different places the prices vary very much, but this will give some idea of the economy of having body-linen made at home if possible. Collars and muslin-sleeves are generally *bought*, but if the lady has time, the latter are easily made at home, for half the cost of ready-made sleeves.

In-door Dresses.

507. In-door Dresses are made by the dressmaker, either at her own home or at the house of her employer. Under this term are comprehended two classes of workwomen—those who *take in* work and those who *go out in search of it.* The former is more generally patronized than the latter, and the employer either gives her the dress, letting her find the materials for making it up, or buys all the trimmings, &c. herself, giving them to the dressmaker to use. The latter plan, however, effects very little, if any, saving, as the dressmaker will generally contrive to "make a bill," in spite of the lady's precautions. The charges for *making* a dress vary from 5s. 6d. to 15s., or even more in some of the fashionable houses. It is better to have a dress *well-made* at first, as more is often spent in alterations than would have originally been given to a good workwoman; but that desideratum, independently of extras for linings, &c., will not cost more than 6s. or 7s. a dress, taking care to have as little trimming as need be, for it is by those smaller items that the bill is made to mount up to some dreadful sum, to the horror of the unfortunate lady who fancies she has made such a bargain in "a lovely muslin for 7s. 6d.," till she opens her bill, in which "making dress, &c., £1 5s." meets her astonished gaze. *Making dresses at home* is a doubtful economy. The charge in London is 2s. per day; and as the workwoman will scarcely finish a dress in less than one and a half or two days, the cost of this amounting to 3s. or 4s., with her food, and the chance of the dress not fitting when made, detract from the apparent economy of *making at home;* but for *altering* and *repairing* dresses, or for making children's frocks and pelisses, &c., the plan is often useful, as for those things high charges are made, and an industrious workwoman gets through an amount of sewing for 2s. which would, if sent to a regular dressmaker, bring in a bill for 7s. or 8s. In the country, where young women go out at from 10d. to 1s. 6d. per day, it sometimes answers to have common dresses made at home, as the usual dressmaker often lives some miles from her employer's house. If a lady's-maid is kept, of course the sewing and dress-making belong to her department, and in that case little or nothing requires to be sent out.

In-door Shoes.

508. In-door Shoes do not form a very expensive item, except for visiting purposes, for which white satin shoes cause rather a large outlay,

Common in-door shoes cost only from 3s. to 6s. per pair, and last for a long time.

Out-door Dress.

509. Out-door Dress includes mantles, shawls, bonnets, gloves, neck-handkerchiefs, veils, walking-shoes, and many other trifling articles which the fashion of the day renders essential. Handsome shawls are expensive items, costing from three guineas to forty or fifty guineas a piece. Mantles are always better made by the milliner than at home, as the pattern is constantly varying. In fact, all the articles here enumerated must, in the usual way, be obtained at the milliner's shop, except the walking-shoes, which form rather a large portion of the necessary annual expenditure in those who take a proper amount of walking exercise.

510. The Expenditure for Female Dress may be said to vary from £6 to £60 per annum. The first-named sum *may* be made to supply a decent and respectable exterior, but only those who have been long accustomed to manage for themselves can contrive to eke it out, so as to make the wearer presentable in the society of ladies and gentlemen. For those who go out in the evening to any extent, it would be utterly impossible to dress at less than £15 a year, and for most ladies £40 will barely suffice. This last-named sum is, however, often made to do what is required, and is the common allowance for single daughters among the middle classes out of London, and in the metropolis also, except in the fashionable circles, where it would be found utterly inadequate. Married ladies who go into society are expected to dress in more expensive silks and satins than would be suited to their single friends, and therefore the highest sum named above may be fixed as a moderate allowance for their annual equipment.

Gentlemen's Dress.

511. Gentlemen's Dress is almost always obtained ready made from the tailor, hatter, and shoemaker. Sometimes, however, the materials for clothes are purchased and made up by tailors who profess to undertake that kind of work. Few people, however, are able to select good cloth, which is now often made of such inferior materials as to wear out in a very short time. I believe, therefore, that there is very little economy in attempting this plan, unless it so happens that the purchaser has a knowledge of good and bad broadcloth, in which case he

may effect a saving of 30 or 40 per cent., by getting his own materials made up. In hats, and boots or shoes, this is impossible, and therefore there is no choice in the matter. With regard to body-linen, it will be found much better, and also cheaper, to have it made at home than to purchase it ready-made, inasmuch as the work of the latter articles is always bad, and the materials also in many cases.

512. The Annual Cost of a Gentleman's Dress may be made to range from £10 to £50 and upwards. The first-named sum will only procure one suit a year, with an overcoat once in three years, one hat, and three pairs of shoes; the body-linen being of the plainest description. For some people, with great economy, this sum may be made to afford a decent exterior; but less than £30 a year will not allow for morning and evening dress, a decent hat, and boots in good order.

Children's Dresses.

513. Children's dresses *may* be made of very inexpensive materials, and they may also be made a great source of extravagance. It will generally be found that the mother's dresses, when worn out, will cut up and alter for her girls; and the same applies to the clothes of the boys, who may often be dressed at the price of labour only in converting coats into jackets. There is no doubt that a well-dressed girl is a much more delightful object for the mother's eye than if she were reduced to the necessity of appearing in a badly-dyed merino of her mother's; but when a better cannot be afforded, it is far happier for all parties that the children should be brought up with a practical knowledge of the advantages of economy, than that they should be rigged out in silks and satins at the cost of a clever manœuvre to obtain the money from the father in order to pay for them; and often perhaps when they know he cannot afford it. Children may thus be made a source of unmixed annoyance, or, on the other hand, they may be brought up to afford gratification and delight to both their parents and themselves, by the reflection that no care and economy are spared in making them "fit to be seen," and yet that no more is really spent than is necessary to make them so.

BOOK III.—HOME MANUFACTURES.

CHAPTER I.—GENERAL REMARKS.

514. The present book includes the various receipts for making bread, beer, &c., and for preserving and pickling, as well as the management of the poultry-yard, dairy, and laundry. In some cases it is desirable to adopt the home-manufacture on account of the saving in cost, while in others the produce is more genuine, and also more wholesome—as, for instance, bread and malt liquor. Sometimes, when the process for making any article at home is the same as that described in the last chapter, no further account will be found here, but only the comparative cost.

CHAPTER II.—HOME-FED MUTTON, PIGS, &c.

Sect. 1.—Beef and Mutton.

515. Beef is too large in carcase to make it possible or convenient to kill a bullock for home consumption, except in very large establishments, farm-houses, &c. Mutton, however, will often answer in retired situations, where there is no regular butcher, and the choice is between mutton and nothing. In point of economy, few people will be able to compete with the butcher's meat, inasmuch as sheep do not thrive in small numbers, or in the kind of pasture which is generally attached to private houses. Wherever I have known the attempt made, and the sheep kept till they were fit for the knife, the mutton has cost half as much again as it would be worth in the butcher's market. Of course, farmers can keep a few sheep for their own use, and kill them as they want them, but this does not serve the general housekeeper. Veal is still worse than mutton, as it keeps badly, and is larger in the carcase.

516. Pork is an exception to the general rule, as regards meat, as it may be produced to great advantage by any one who has a garden and refuse vegetables from it. Among the cottagers this is fully recognized, and "the pig" is generally expected to turn out so advantageously as to pay the rent. In order, however, to carry out to advantage the keeping of this animal, three things are to be chiefly

considered—1st, *the kind and size of the pig suitable to the amount of food;* 2nd, *the most economical kind of food for fattening pigs;* and 3rd, *their general management.*

Sect. 2.—The Pig.

517. The Kind of Pig most likely to be converted into cheap and good pork and bacon, is not the high-bred "show-pig," but one of somewhat less aristocratic lineage. Those which take the prizes at agricultural shows are more serviceable in keeping up the breed by admixture with coarser kinds, but the animals themselves are not hardy enough to bear the neglect and mismanagement which they so often have to endure, although admirably adapted for making bacon-pigs of large size, when managed with judgment, and fed with proper food. The model-pig for the use of the private consumer should have a broad brow, a short snout, ear *not* small, and a moderate quantity of hair. The little neat, prick-eared, naked pig will get too fat, and weigh little for its age; and, on the other hand, the long-snouted, long-legged, and long-backed animal, although attaining to great weight, does so by an expenditure of food more than the increase of weight will counterbalance. All pigs should have a tolerably arched back, not sinking in the middle, which latter form prevents the proper development of flitch; but this is not of so much importance in small pigs as in those intended for bacon. If, therefore, the intending pig-keeper can procure an animal with the above characteristics, he need not trouble himself much about the breed, though, at the same time, it is notorious, that in every county there are certain peculiar kinds which are more celebrated than others for hardihood and for feeding qualities.

The Best Food for Pigs.

518. The most Economical kind of Food for Pigs kept by private individuals, is undoubtedly the refuse or superfluous produce of a garden, together with the contents of the wash-tub. Small potatoes, cabbages, cauliflowers, and brocoli, not wanted for the house, together with pea and bean shells, may all be mixed with the wash and given to the pig, who will enjoy this food immensely, and thrive on it *as long as the weather is warm*, if it is thickened occasionally with a little gurgeons. By the month of September, at the latest, this food must be changed, in order to commence the process of fattening, for which there is nothing better than potatoes, boiled or steamed, and mixed

with barley-meal; and towards the end an equal quantity of this last and bean or pea-meal. If the pigs are healthy, and have been fed regularly, they will not require more than two or three months fattening even for bacon, so that by the time the cold weather sets in they may be killed, avoiding, however, severe frosts, as they interfere with the salting of the meat. If the commencement of fattening is delayed so long that it is not completed before the winter frosts are established, the pig does not gain weight so rapidly as he did before, the total consumption of food will be greater, and the relative improvement less;—in other words, a pig kept through the winter, and fattened at that time, so as to be killed in the spring, will not pay so well as one fattened in the autumn, and killed as soon as the weather will allow.

General Management of the Pig.

519. The Management of the Pig when kept in a sty, as for private families, is as follows:—In the first place a warm sty is necessary, with a well-paved yard, sloping to a drain. This should be kept clean, and the lodging-part should be provided with straw, or some kind of litter, changed once a-week. Not more than three or four pigs should be kept together, and in few private families will there be more than enough food for one. When a pig is not intended to be kept to any great size, it is a good plan to keep him on the horse-manure heap, if it is partially covered in, and of course supposing that there is one. By this plan the manure is more than doubled in value, and the pig also obtains a considerable amount of nourishment from the corn not digested by the horses. The heat of the manure also stimulates the growth of the pig, and the weight is proportionately increased; but when persevered in too long, it is apt to cause disease of the liver, followed by loss of flesh and general health. Pigs are generally fed three times a-day, and are allowed as much as they will eat; but it is not a good plan to leave any food in the trough after feeding, as it injures their stomachs to be always picking their food. Even in small families an underground tank is better than a wash-tub, as it preserves the food sweet much longer, and prevents maggots from being developed, which are, however, no absolute loss of substance. When the fattening begins, a copper or steam-boiler is necessary, to prepare the food by boiling or steaming; but it should never be given till cool. Potatoes, carrots, Swede-turnips, mangel-wurzel, parsnips, or, in fact, any of our root-crops, may in this way be well-boiled and given mixed

with meal; and avoiding the heating effects of bean or pea-meal until the last week or two, when they serve to give a double degree of firmness to the flesh and fat, without making it hard, which is the case after long-continued feeding upon bean-flour. The fitness for killing must be decided by the appearance of sufficient fatness, and this will vary according to the views of the proprietor, who may either like very fat or comparatively lean bacon; but, as I before remarked, if possible, the pig should not be kept through the cold of winter. For porkers, a week's keep on barley-meal and milk, if it can be procured, is the best mode of finishing them; but they are generally nearly fat enough before this change in their diet. Sucking pigs are killed at four, five, and six weeks old.

Breeding of Pigs.

520. The Breeding of Pigs is sometimes made a very profitable source of income, on the small scale, to the labourer or to the private gentleman. A sow will live many years, and bring numerous litters, having two in each year, and thus producing on the average from twenty to twenty-four pigs per annum. Supposing these pigs were killed as sucking-pigs, when they are worth on the average 6s. a piece, the sow will bring in £7 4s. per year, against which is to be set her food during that time, which will not amount to more than half the money. If, instead of this, the owner has a run for his pigs, and the refuse of a large garden, he may rear fifteen to eighteen of them as porkers, and sell them at 30s. a piece, with an expenditure of 10s., or a profit altogether of nearly £20. But to effect this requires great care and good management, as well as a good sow. If the one selected at first brings a good number of pigs, and rears them well, she is too valuable to be killed, and ought to be kept as long as she will breed, especially as she improves as a nurse with each succeeding litter. If, on the contrary, her litters are small, or she proves a bad nurse, she should be put under the farrier's care, and afterwards converted into bacon, which is exceedingly good in that case; a sow which has had one litter being as fit for making that article as any hog. When a sow is near the farrowing time, which is four months after her visit to the boar, she should be put in a sty by herself, with a moderate quantity of straw; if there is too great an abundance, she is apt to overlay the young pigs as they bury themselves in the straw. To prevent the risk of this, in a great measure, it is a good plan to fix a ledge of wood eight inches from the ground, so that there is a place

into which the young ones may creep without fear of pressure. Some sows have also an unnatural propensity to eat their young, but this generally arises from bad feeding, and when once she allows the sucklings to fasten themselves to her teats they are safe from all danger of this accident. The sow with a large litter should be well fed on bran and barley-meal, with milk or whey; grains are also an excellent food; and it is always well, where there is the opportunity, to allow the sow to run in an orchard or paddock for an hour every day, shutting the pigs in the sty during the first three weeks, but afterwards allowing them to accompany her. The sucking-pigs are killed off as wanted, and those intended to be kept are castrated or spayed at a month or six weeks old, omitting those which are intended to keep up the breed, which are thenceforward called open-sows or boars.

Killing the Pig.

521. In killing the pig, the feet are tied together, and the snout muzzled; the knife is then plunged deeply into the junction of the throat with the chest, where it divides the large vessels, and speedily causes death. The pig is usually starved for twelve hours previously, allowing water only. The blood is allowed to drain freely, and is collected for black-puddings, stirring it with a stick all the time. If the pig is small, and intended for salt pork, it is then scalded with water not quite boiling, after which the skin is scraped of the hair, and this plan is in some counties adopted for bacon-pigs also; but, generally speaking, for them the hair is singed off by sprinkling lightly a little straw upon the body on the ground, and setting fire to it, care being taken not to crack the skin. The burnt bristles and cuticle are then washed off, and the pig is raised by the hocks and its entrails removed. The inside of the body is carefully sponged, and the carcass remains till next day, to be cut up according to the plan described at page 28.

Cost of Home-fed Pork.

522. The cost of home-fed pork, or bacon, will generally be found to come to within 1½d. or 2½d. a pound of the selling price, varying of course with the cost of the store-pig and with that of the feeding materials. Much will depend upon the degree of fatness required, the last part of the operation of fattening being much more costly than the first, and especially if prolonged through the winter months, as already observed in paragraph 518. On the whole, there can be no doubt, from the experience of numbers of private families as well as

cottagers, that when there are proper conveniences, moderate attention, *and a garden*, a pig or a couple of pigs may be kept with great advantage, and a profit to the amount specified above.

CHAPTER III.—DAIRY PRODUCE.

523. Three things are necessary to the proper management of the dairy, and these are—1st, *proper cows* fit to produce milk; 2nd, *a good pasture for them* with *dairy* and *dairy utensils;* and, 3rd, an *experienced and industrious dairymaid* capable of good management of the cows.

Sect. 1. The Cow.

524. Where only one or two cows are kept, especially where their pasture is limited in extent, it is very important to attend to the breed, of which some are much better than others for milking purposes. When the cows of the neighbourhood are decidedly bad, it may be better to bring others from a distance; but, as a rule, it is better to select the best within reach, as experience shows that they are suited to the soil and climate, whereas strange breeds may, and often do, fail when removed to fresh pastures. If the pasture is good, there need not be so much care taken, as any cow will thrive there; but on inferior grass, a cow accustomed to rich feeding will fall away and give less milk than one accustomed to the locality, although in herself a much worse milker. But supposing the situation very confined, as in the neighbourhood of a town, it should be known that the Flemish cows will thrive well in confinement, even for a series of years, where those of the English breed would rapidly lose flesh and condition. Unless, therefore, there is good pasture and plenty of change, avoid the well-bred English short-horn, or the cross with any of the Channel Island cows, and select in preference a little French or a large Flemish cow, which may generally be procured in the London market, or in those of the large towns. The Jersey cow gives good milk, and is very profitable, as well as those of the adjacent islands of Guernsey and Alderney. The cross with the Durham is excellent for dairy purposes, when there is plenty of grass, as also is the old Dorset cow; but the Herefords, Sussex, and Devons are too much inclined to lay on fat to make them useful to the private cowkeeper, unless he makes up his mind to fatten them, and sell them off when half-dry. This is an excellent practice, in point of economy; but as private cow-

keepers are apt to entertain the fancy of making pets of their animals, their feelings will often prevent this condemnation of a highly-prized favourite to the knife, as soon as she has made herself a place in his affections. Whatever be the breed or quality of the cow, she should have plenty of good food, in order to insure a proper supply of milk. This food should be succulent as well as nourishing, the latter kind having a greater tendency to make fat than milk. A cow well fed may be safely milked to within a month of her next calving, but it is better to dry her for that time. It is usual in private families to keep two cows, one to calve in the spring, and the other in the autumn, so as to insure a constant and tolerably uniform supply of milk. In purchasing the first cow, it is better to select one to calve in May, when the grass begins to be succulent; but afterwards they must be chosen so as to come in when the other is going dry. The system of stall-feeding is now very generally adopted, and is found to answer very well in small numbers; but when the cows are collected together in great dairies, disease is propagated from one to the other, and the consequence is, that a frightful mortality often takes place. In selecting his cows for the dairy, the private individual who is a novice in these matters will always do well to consult some experienced cow-keeper, as there is a great art in detecting the signs by which a good milker may be known from a bad one, and a healthy from a diseased cow. The following rules, however, may assist the purchaser when he cannot obtain the above help:—

525. Points Desirable in a Cow for the Dairy.—*Head* large, muzzle coarse, ears pendent, and tinged yellow inside; *neck* long, slender, and tapering towards the head, but with little loose skin below; *chest* deep but narrow, and strikingly deficient in the substance of girth; *ribs* flat and wide apart; *back* narrow, joints wide and loose, bones prominent, hips narrow; *belly* large and drooping; *quarters* thin and firm; *legs* long, coarse, and sickle-hammed; *tail* set on low; *haunch* drooping; *udder* large, thin, and loose, and the milk-vein very prominent.

Sect. 2.—The Pasture, Dairy, and Utensils.

526. The Pasture is of the greatest importance, as upon it will depend in great measure what kind of cow shall be selected, and what amount of milk, butter, and cheese may be reckoned on. With some kinds of pasture it is impossible to obtain either good butter or good cheese, and all that can be done is to use what milk and cream are

wanted in the house, and sell the remainder, which is generally easily effected. When the grass is radically bad, and the landlord allows it, the better plan is to break it up, and plant it with lucerne, rye, Italian rye-grass, or some of the roots which must be given with hay. Lucerne gives a very good milk, and so do rye and Italian rye-grass, but nothing is equal to a good old pasture. When the land is poor, *but not wet*, there is no food so economical as gorse, furze, or whin—three names for the same plant. It must be bruised in a proper machine, to be obtained at the agricultural implement maker's; and the quantity necessary for each cow on the average, is three bushels and a half per day, mixed with four ounces of salt. In Mr. Spooner's farm, near Worcester, where this plan is carried out, the cows are allowed about four-and-a-half pounds of hay and twenty pounds of Swedish turnips in addition, and the produce is certainly of an excellent quality, and, I believe, in a remunerative quantity. The cows there have almost always been in good health, though stall-fed; but they are generally sold off after milking in a fat condition, for completing which the gorse is used, with the addition of a little oil-cake towards the last, beginning with four pounds and increasing it to twelve pounds per day for each cow. The gorse is first put through a common chaff-cutter, and then bruised in a mill similar to a cider-mill. It must be used when quite fresh, and at Mr. Spooner's farm, to avoid working on the Sunday, the cows are fed on other food on that day, which may be advantageous also in point of health. It is cultivated by sowing it with a crop of barley or oats, and it is fit to cut the second autumn after planting. It is then mown every day during the winter, as required, with a common scythe, close to the ground. A tolerably good soil, dry enough for this plant, will cut from seven to ten tons per acre; and the same land has been cut for fourteen years without loss of quantity or quality, but after that time it required to be given up and a fresh plantation made on other land, as the roots became decayed. The plant used is very common in England, but is called the French furze, and it grows well upon an old woodland, stocked up, such as is often useless for other purposes; but it must be dry. Half an acre of this land is, on the average, enough to keep a cow twenty weeks; on rich, loamy dry land a quarter of an acre will serve for the same period, so that an acre of land may be made to keep two cows for more than a year, though it is usual to give them grass in the summer. On the large scale, the mowing, carting, cutting, and bruising, cost not quite a penny a bushel; but for small dairies the expense would of course be greater. As,

however, this item is generally a part of the man's daily work, it is seldom taken into the calculation. Mr. Spooner's management of the gorse is as follows:—The quantity of seed used by him is 20 lb. per acre, sown broadcast; but he recommends it to be drilled as near in the rows as will admit of hand-hoeing for the first year or two, if the land is inclined to run to grass. It is not manured, though in its consumption it creates a great deal. When once sown and well rooted, it yields a great quantity of food for cattle, at no other expense but the cutting, bruising, &c. He generally begins to mow it as soon as the grass is gone, and it lasts till grass comes again. If there is a threatening of snow, he mows some quantity beforehand, as it will keep for some days unbruised. If, therefore, the private cowkeeper can manage to keep his couple of cows for half the year in this way, he will find that another acre and a half of good grass will suffice for the six summer months, or two acres in all, making a total outlay, besides labour, of the yearly value of the land—say £6. 6s., or about 1s. per week per cow, a sum which will barely give a quart of milk per day when purchased of the milkman, instead of five quarts, which is the average quantity to be obtained from each cow, one of which will be always getting dry or quite so, and the other either in full milk or nearly so. Under the ordinary method of feeding cows—that is, with grass and hay—each will require on the average from two to three acres of land, taking into consideration the hay, straw, &c., which she consumes; or, if stall-fed on hay, grains, turnips, mangel-wurzel, &c., she may be said to consume the produce of one to one and a half acre; so that the plan of feeding on gorse, when properly carried out, effects a saving of 50 per cent. The late Mr. Cobbett published a plan by which a cow could be stall-fed on the produce of a quarter of an acre during the entire year; but I believe in practice this is found to be impossible, unless the land is peculiarly rich and far above the average; and the above is the usual amount required.

The Dairy.

527. The Dairy in country houses is often an expensive and pet establishment, and the room devoted to its use is then fitted in a very extravagant manner. The chief essentials in this department are—1st, the means of procuring as even a temperature as possible all the year round, and that as near as may be to 50 degrees of Fahrenheit; 2ndly, proximity to the milking-place of the cows; and, 3rdly, as the cows

should be near the dairy, a cow-house also must be provided for, which may as well be under the same building.

528. The Dairy-room should be placed on a dry and somewhat elevated spot, though not so much so as to be exposed to the action of the north and easterly winds. The west or north-west side of a hill is the best situation, and then the dairy may be built facing the hill, with the cow-house on the lower side, protecting it from the sun towards the south. The dairy-room itself should in such a case be partially excavated in the soil, and its walls should be of hollow brick, from 14 to 18 inches thick, the lower courses being laid in cement, and the ceiling being an arch in solid brickwork; and if a small stream of water can be made to run through it at pleasure, so much the more efficient will it be in summer, in point of coolness and cleanliness. The roof should always be of thatch, that being the best non-conductor of heat which we possess in the shape of a roofing material; and it should project considerably at the eaves, with a verandah as well on the sides with windows, to keep the sun off. Over the dairy, in the roof, may be a loft for cheese or fruit, where such a store-chamber is desired. The floor should be of stone, brick, or paving tiles, sloping gently towards a central drain, which should be well trapped; and, as an additional precaution, this drain should run into a small cemented or lead trough, which should be emptied out each day to prevent fermentation. Windows should be provided on opposite sides, which should be glazed, but capable of being opened to the full in warm weather, at which time shutters of perforated zinc should be substituted for them. Round two or three sides of the room a platform of brick or state should be raised about 18 inches from the ground. This is generally effected by half-brick piers and arches, or by piers with slate thrown across; and upon this platform the milk-pans are placed.

529. A Small Wash-house is required, when the dairy is placed at any distance from the ordinary wash-house. In it there should be a chimney, with a small fireplace, which must be constructed on such a principle as to suit the kind of butter-making preferred. For the Devonshire mode, a small close stove is the best; and, indeed, for all other methods this answers equally well. From this a flue may be carried round the dairy, with a damper to cut off the heat in warm weather, just as in greenhouse flues; and at pleasure it may be carried into the chimney away from the milk-room. This wash-house should have an outer door to the south, and should not have any internal com-

munication with the milk-room. This room, also, should be paved in a similar way to the milk-room, as it is here that all the utensils should be kept and washed.

530. The Cow-house for private families is generally limited in its accommodation, being at most intended for only two cows. It merely requires space for the cows to stand, with room to milk them, for which an area 12 feet by 12 feet is quite sufficient, or even less where room is an object. A rack and manger, with a sound brick or stone floor, are all the arrangements proper for the accommodation of these animals.

531. The Cost of Dairy Buildings complete, as here described, exclusive of utensils, will be about £60, which sum may easily be extended to £100 if greater ornament is desired, or in situations where thatch and building materials are dear. In the above calculations the doors, windows, &c., are all of the roughest description, but well made, and in accordance with the thatched roof. The pillars also of the verandahs are estimated at the price of rough larch or Scotch fir poles. The dimensions of the milk-room are 12 feet by 10 feet; wash-house, 12 feet by 8 feet; and cow-house, 12 feet by 12 feet.

532. The Utensils for an Ordinary Private Dairy are—1st, the *hydrometer* and *lactometer*, to judge of the richness of the milk of each cow; 2nd, the *milking-pail* or *pails* and *stool;* 3rd, the *pans* for storing the milk; 4th, the *cream-pan* and *skimmer;* and 5th, the *churn*, or, for Devonshire butter, the *hand-tub*. The *hydrometer* is an instrument by which the specific gravity of milk or any other fluid is ascertained—that is to say, the quantity of water in it; since the instrument really shows the difference between the milk and pure distilled water. All milk is composed of water in which are suspended casein (or cheesy matter), butter, milk-sugar, and various salts;—the proportion of water in 100 pints being 87, and, as the specific gravity is increased in a ratio to the quantity of these solid materials, so the number indicating it marks their amount. The instrument (*see fig.* 88) consists of a glass tube, with a bulb at its lower extremity, in which is a little mercury so adjusted that it will make the mark 0 on the scale float exactly level with the surface of distilled water. When the jar accompanying it is nearly filled with the milk to be examined (taking care to shake up the cream just before doing this), the instrument rises in proportion to the density, and by casting the eye along the surface of the milk, the number on the scale on a level with it will indicate the exact specific gravity. The ordinary specific gravity of new cow's milk, at 50 Fah-

renheit, is said to be 1031; but this is no test of the cream, which is very variable, and in many cases the specific gravity of the skim-milk is greater after skimming than before. As a test for *curd* it is, however, of great value; but for measuring the cream the best instrument for ordinary use is the *lactometer* of Sir Joseph Banks (*see fig.* 89). Three or four glass tubes, about a foot high, divided into 100 parts, and graduated near their upper ends, are loosely supported in a wooden stand, and filled with the milk warm from the cow, one being devoted to each sample to be examined. The scale is generally extended down one-fifth of the tube, and this will almost always suffice; but in some cases the amount of cream is much greater than this. After standing twelve hours, the cream has all risen to the surface, and the figure opposite its *lower* edge marks the per centage of cream to milk. Thus, supposing it stands at the figure 10, then there is 10 per cent. of cream; or, if at 5, then only 5 per cent., and so on. The average of cream appears to be about 8 or 9 per cent., but in different breeds and pastures it will vary greatly from that amount. Provided with these two instruments, one of which measures the amount of curd, and the other that of cream, the cow-keeper will be able to ascertain whether the cows which he has are worth keeping, or whether he shall make an attempt to better himself by getting rid of them and purchasing others. The *milking apparatus* consists of a low stool, usually with three legs, to adapt itself to the unequal ground on which the milking takes place; and a small pail, which may be of wood or tin. In winter, the former is preferred, because it does not chill the milk so much as metal; but in summer, the latter is less liable to absorption and decomposition, and therefore keeps it sweeter. The *pans* are, for the ordinary method, large and shallow, and either of metal, glazed earthenware, or glass. For the Devonshire mode, an earthen pan is used at least a foot deep, so as to allow of a great thickness of cream collecting. In either case, a *strainer* is required to pass the milk through before setting it by for the cream. The *cream-pan* and *skimmer* are merely for the purpose of collecting the cream from the milk. The former is a deep earthen pan, calculated to hold enough for one churning, which will vary with the number of cows. The skimmer is a large and somewhat flat spoon, used to collect the cream without breaking its head more than necessary, that is, so as to leave none behind. The *churn* varies considerably in make, but the principle is the same in all. Butter consists of cream, in which the globules have been broken by agitation, and that churn is the best which will effect

that object in the best manner. There are three principal divisions in the kinds of churns, one, in which a fixed vessel receives the cream, which is broken up by a plunger worked up and down in it—this is called the *plunging churn;* a second, which is that most commonly adopted in English dairies, and called the *barrel churn*, is rotated by a handle, so that the cream is made to fall over projections in its interior as it goes round; while in the third, or *new patent churn*, the barrel is stationary, but has a revolving kind of paddle worked through the cream contained in it. In the Devonshire method, the cream is beaten with the hand in a common small wooden tub, until it is converted into butter.

Sect. 3.—The Dairymaid and her Management of the Dairy.

533. The Dairymaid in small families is usually also the cook; but she should in that case, as well as in that of the servant devoted entirely to this kind of occupation, be *scrupulously clean.* Without this accomplishment, it is in vain to expect good butter or cheese; nor will the milk even keep sweet in warm weather, the slightest remnant of the old milk being enough to develop the acetous fermentation. In addition to this cardinal virtue, punctuality is very important, both in milking the cows and in all other dairy operations. If these animals are not regularly milked they are uneasy, and the moment this is the case the quality of the milk suffers. Sometimes the milking is done by a man or boy; but in many cases the female servant has this task, which requires considerable knack; and it is a fact, that a good milker will always get more milk, with less trouble also, than a clumsy one. The hours of milking should be early in the morning and as late in the evening as can be conveniently arranged, the object being to give the milk as much cool air as possible during the time of its throwing up the cream. The dairymaid should be careful always to drain the udder perfectly; the habit of leaving milk in it is greatly injurious to both the health and the productiveness of the cow, besides being extremely wasteful; every succeeding drop being richer than the one before it, and the last half-pint giving twelve times as much butter as the first. The dairymaid should not only be a skilful milker, but also perfectly good-natured; a gentle hand is the most successful, and usually women milk better than men. The quantity of the milk depends on many causes: as, the goodness, breed, and health of the cow; the kind of pasture, and the opportunity for its frequent change,

which has also a tendency to increase the milk; the length of time from calving; the having plenty of clean water in the field she feeds in, &c., &c. Those who attend properly to the dairy will feed the cows particularly well two or three weeks before they calve, which makes the milk more abundant. Cows should be carefully treated; if their teats are sore, they should be soaked in warm water twice a day, and either be dressed with soft ointment or with spirits and water. If the former, great cleanliness is necessary, and the milk at these times should be given to the pigs.

Management of the Milk.

534. When the milk is brought into the dairy, it should be strained and emptied into clean pans, immediately in winter, *but not till cool* in summer. White ware is preferable, as the red is porous, and cannot be thoroughly scalded; metal is selected by some people, and zinc in particular, in the belief that it throws up the cream. During summer, skim the milk either before the sun has heated the dairy, or after its effects are gone off; at that season it should stand for butter twelve hours without skimming, and twenty-four hours in winter. Deposit the cream-pot in a very cold cellar, if the dairy is not cool enough; and if churning cannot be managed change it into fresh-scalded pots; but never omit churning twice a week. The cream must be strained into the churn through a fine sieve or linen cloth.

Rearing of the Calf.

535. When a calf has to be reared, it should be taken from the cow in a week at farthest, or it will cause great trouble in rearing, because it will be difficult to make it drink milk in a pan. Take it from the cow in the morning, and keep it without food till the next morning; and then, being hungry, it will drink without difficulty. Skimmed milk and fresh whey, just as warm as new milk, should be given twice a day in such quantity as may be required. If milk be scarce, smooth gruel mixed with milk will do. At first, let the calf be out only by day, and feed it at night and morning. It is usual at first to give the calf a finger dipped in the milk to suck; but it may soon be taught to drink of itself. To teach it to eat, a piece of fine hay is loosely tied round with a string, and suspended over the crib in which the calf is kept. It will attempt to suck the hay, which will then come out into its mouth, and the instinct of nature will teach it to eat.

Butter-making.

536. By the ordinary method this consists in pouring the cream into the churn, or sometimes the raw milk as it comes from the cow. The former is, however, the preferable method. The cream from day to day, is usually set apart till the churning day, in a bowl for the purpose; but in some dairies each skimming is kept separate. By the third day, a slight acidity is developed, and that is rather conducive than otherwise to the production of good butter. Great care is requisite to keep the churn at an average temperature of 50 degrees Fahrenheit; and, if the weather is cold, the room in which the churning is carried on must be warmed to nearly that point. The churn must always be well scalded out before putting in the cream, to prevent the butter from adhering to it. In winter warm the churn, and in summer cool it; and let the cream be exactly 50 degrees by the thermometer. If the cream is 10 degrees more than 50, you lose 5lb. out of 30, and so in proportion; besides that, it does not keep so well, and as it does not begin to turn till 50 degrees of heat, if you put it in cooler than that you have to turn the churn till it acquires that heat before it begins to have any effect. The butter is seldom longer than an hour in coming when this plan is adopted. Butter is not so good if it comes in less than three-quarters of an hour. When the butter is come, pour off the buttermilk, and put the butter into a fresh scalded pan, or into tubs, which have, after scalding, been in cold water. Pour water on it, and let it lie to acquire some hardness before you work it; then change the water, and beat it with flat boards so perfectly that not the least taste of the buttermilk remains, and that the water, which must be often changed, shall be quite clear in colour. If any of the milk be left in the butter it will speedily injure the flavour by the fermentation to which it is disposed. The butter must then be salted in the proportion of half a pound of salt to fourteen pounds of butter. The salt must be of the finest kind, and must be perfectly blended with the butter, either by skilful beating with the hand, or, in summer, it is more advisable with two wooden spatulas. There is no one article of family consumption much in use of greater variety in goodness, or that is of more consequence to have of a superior quality than this; and the economizing of it is most necessary. The sweetness of butter is not affected by the cream of which it is made being turned. When cows are in turnips, or eat cabbages, the taste is very disagreeable; and the following ways have

been tried with advantage to obviate it:—When the milk is strained into the pans, put to every six gallons one gallon of boiling water—*Or*, dissolve one ounce of nitre in a pint of spring water, and put a quarter of a pint to every fifteen gallons of milk—*Or*, when about to churn, keep back a quarter of a pint of the sour cream, and put it into a well-scalded pot, into which the next cream is to be gathered, and stirred well, and the same is to be done with every fresh addition. When the firm compact mass of butter is completed, it may either be potted in earthenware basins, or made into rolls, forms, or pats, for immediate use.

537. The Following Observations on Butter-making are from a noted Herefordshire dairywoman, and have proved exceedingly useful in several instances where they have been carried out:—"If the butter comes in grains, let out some of the buttermilk, and churn it again; it is generally good in that case. When the butter is salted, washed, and still in water, weigh it, and put it in water in another vessel; make it up, and put it in fresh water, and in hot weather change the water three or four times. The dairymaid should not touch the butter in the churn with her hand, but should collect it with the churnstick; then put cold water, and churn it round; put fresh water, and let it remain a little till she is ready to make it up. In summer she should put about one quart of cold water to as much cream as will make three or four pounds of butter when put into the churn; and in winter put from half a pint to a pint of hot water in, to make it the heat of new milk. If the weather is very severe, the cream should be put within airing distance of the fire, with a dish and cloth covering it, the night before churning. A tea-spoonful of crystallized saltpetre should be put into the cream-bowl before beginning to gather the cream at all times; if the cows have turnips, put more. When the hands are once seasoned to make the butter up, never leave off till it is done. The churn should always be washed the moment the butter is out, and nothing but water should be used for the inside. Wooden vessels used in the dairy should be cleaned with lime or sand, rubbed on with a wisp of straw, and scalded in a copper twice a week; earthen vessels should be rubbed with wood-ashes, and then boiling water poured over them. The butter is better when you skim the cream off every twelve hours, though the quantity may not be so great. A hand-churn is best; and one large enough for two cows will do equally well if one only is kept. In winter put into the churn about three gallons of boiling water, and

let it remain in five minutes to warm the churn, thoroughly turning it round; in summer rinse the churn out twice with cold water. If, after churning two hours in winter, the cream does not come, put in two quarts of hot water; in summer, if, after long churning, it gets thick, and does not separate, put in two quarts of cold water. At all times the churn should be turned quickly at first, and slowly afterwards. When the butter is come, it should be pressed against the sides of the churn, and taken out and laid either on a slate, such as is used for making pastry, or a thick firm table, and beaten two or three times over with the knob before the salt is put to it, and afterwards, till not a drop of buttermilk remains in it. It is then ready to make up; the hands of the person to do this should be washed perfectly clean, then put into hot water, or rubbed over well with salt, then put into cold water; this prevents the butter sticking to them; and the knife, and whatever wooden things are used, should be prepared in the same way." I have known several cooks make excellent butter, by attending to these rules, who have had no former experience.

538. The Devonshire Mode of making clotted cream and butter is as follows:—In winter, let the cream stand twenty-four hours; in the summer, twelve at least. Then put the milk-pan on a hot hearth, if there is one; if not, set it in a wide brass kettle of water, large enough to receive the pan. It must remain on the fire till quite hot, but on no account boil, or there will be a skin instead of cream upon the milk. It may be known when it is done enough by the undulations on the surface looking thick, and having a ring round the pan the size of the bottom. The time required to scald cream depends on the size of the pan and the heat of the fire; the slower the better. Remove the pan into the dairy when done, and skim it next day. In cold weather it may stand thirty-six hours, and never less than two meals. The butter is usually made in Devonshire of cream thus prepared, and if properly done it is very firm; though more like cream than butter in flavour. It is made readily enough by beating the thick cream in a tub with the hand, previously scalded and soaked in water. In a very short time the cream is converted into butter, and there is a very small quantity of well-flavoured buttermilk, much richer than that obtained in the ordinary way.

To Season the Wooden Skimming-dish, &c.

539. Rub it over with suet, place it in cold water all night, and next day put it in the boiling copper. For a new churn, soak it in

lukewarm water some hours, then put in wood-ashes and boiling-water. To clean a churn, put cold water in and churn it about; afterwards put boiling water in, cover it down close, and let it stand ten minutes, then churn it about, and empty.

To Remove the Taste of Turnips from Milk.

540. Sprinkle a little salt over the turnips; dissolve one pound of saltpetre in one gallon of water; bottle it, and add one pint and a half to twelve gallons of milk when it comes from the cow.

To Keep Cream for Travelling, &c.

541. Put two or three lumps of sugar in it; and, better still, boil it first.

To Preserve Butter.

542. Butter is preserved for winter consumption by salting it more or less, the latter called *potting*. From one to two ounces of salt per pound will keep it through the winter: but if it is intended to last over that time, a larger quantity is required. Great care should be taken to keep out all air-bubbles by pressing and working the butter smoothly down in the jar or tub. Sometimes sugar and nitre are mixed with the salt, in the proportion of two ounces of salt to one of each of the two other ingredients: an ounce of this mixture, finely powdered, is rubbed up with each pound of butter.

543. The Swiss Method of preserving butter without salt, as recorded by Sir John Forbes, is as follows:—"A narrow deal board, not more than four or five inches wide, is fixed horizontally in an open place in the dairy of the chalet; wooden pins, from two to three feet in length, are fixed in an upright position into this, their whole length projecting above its surface. As the butter is made, it is placed daily round these pins (one at a time), beginning at their lower end, and in a mass not exceeding, at first, the width of the board. Every day, as more butter is made, it is added to the previous portion around the pin, the diameter of the growing mass being gradually enlarged *upwards*, until the upper surface overhangs the base to a considerable extent, like an inverted bee-hive. When one pin is filled, another is proceeded with in like manner, and so on. The exposed surface of these masses gets soon covered with a sort of hard film, which effectually excludes the access of the air; and this circumstance, with two others, namely, the complete expression of milk from the butter, and

the unobstructed circulation of a cool mountain air through the chalet, ill go far to explain how butter so treated can remain so long without being spoiled." Sir John Forbes remarks, that he should like this plan to be tried in an English dairy with the above provision; but how we are to meet with a cool mountain air circulating freely in one, I am at a loss to know. Perhaps in the high districts of Wales or Scotland, such an experiment might be tried with advantage.

To Keep Milk and Cream.

544. In hot weather, when it is difficult to preserve milk from becoming sour, and spoiling the cream, it may be kept perfectly sweet by scalding the new milk very gently, without boiling, and setting it by in the earthen dish or pan that it is done in. This method is pursued in Devonshire for cream to be made into butter, and would equally answer in small quantities for that intended for coffee, tea, &c. Cream already skimmed may be kept twenty-four hours, if scalded, without sugar; and by adding to it as much powdered lump sugar as will make it pretty sweet, will be good for two days, keeping it in a cool place.

Cheese-making.

545. In making cheese, the milk is coagulated with rennet, the juice from the stomach of the calf, or, in some cases, of the turkey or lamb, and acts by the remnant of the gastric juice which it retains. A calf's stomach is salted, and preserved till wanted, when a piece is soaked in water, and of this infusion a pint will turn forty or fifty gallons of milk. The *cheese-tub* is a vessel in which the rennet is added to the milk, and in which it remains, being well stirred together, and, if necessary, coloured with annatto or carrot-water. In a couple of hours, or less, the curd is well formed, and it is then taken out and conveyed to the *cheese-vat*, the whey being given to the pigs. In this it is broken up by the hand, and afterwards a heavy weight put upon it, by which the superfluous whey is got rid of; and then it has only to be pressed, salted, and dried, in order to make good cheese. This will be more readily understood from the following receipts. Cheese made on the same ground, of new skimmed or mixed milk, will differ greatly, not in richness only, but also in taste. Those who direct a dairy in a gentleman's family should consider in which way it can be managed to the best advantage. Even with very few cows, cheeses of value may be made from a tolerable pasture, by taking the whole of

two milkings, and proportioning the thickness of the vat to the quantity, rather than having a wide and flat cheese, as the former will be most mellow. The addition of a pound of fresh made butter, of a good quality, will cause the cheese made on poor land to be of a very different quality from that usually produced by it. A few cheeses thus made, when the weather is not extremely hot, and when the cows are in full milk, will be very advantageous for the use of the family. Cheese for common family use will be very good when made by mixing two milkings of skim, and one of new milk; or, on good land, by skim-milk only.

To Prepare the Rennet.

546. Take out the stomach of a calf as soon as killed, and well scour it inside and out with salt, after it is cleared of the curd always found in it. Let it drain a few hours; then sew it up with two good handfuls of salt in it, or stretch it on a stick, well salted; or keep it in the salt wet: when wanted, soak a bit, which will do over and over again by using fresh water.

To Make Common Cheese.

547. Put the milk into a large tub, warming a part of it till it is of a degree of heat quite equal to new, or 90 degrees Fahrenheit; if too hot the cheese will be tough. Put in as much rennet as will turn it, or about one dessert spoonful to a gallon, and cover it over. Let it stand till completely turned; then strike the curd down several times with the skimming-dish, and let it separate, still covering it. There are two modes of breaking the curd; and there will be a difference in the taste of the cheese, according as either is observed; one is, to gather it with the hands very gently towards the side of the tub, letting the whey pass through the fingers till it is cleared, and ladling it off as it collects; the other to get the whey from it by early breaking the curd. The last method deprives it of many of its oily particles, and is therefore less proper. Put the vat on a ladder over the tub, and fill it with curd by the skimmer; press the curd close with your hands, and add more as it sinks; and it must be finally left two inches above the edge. Before the vat is filled, the cheese-cloth must be laid at the bottom; and when full, drawn smooth over on all sides. There are two modes of salting cheese—one by mixing it in the curd while in the tub, after the whey is out; and the other by putting it into the vat and crumbling the curd all to pieces with it, after the first squeez-

ing with the hands has dried it. The first method appears best on some accounts, but not on all, and therefore the custom of the country must direct. Put a board under and cover the vat, and place it in the press; in two hours turn it out and put a fresh cheese-cloth; press it again for eight or nine hours; then salt it all over, and turn it again in the vat, and let it stand in the press fourteen or sixteen hours, observing to put the cheese last made undermost. Before putting it the last time into the vat, pare the edges if they do not look smooth. The vat should have holes at the sides and at the bottom, to let all the whey pass through. Put on clean boards, and change and scald them. In some of the large dairy farms in Gloucestershire a quantity of the butter is made from the whey, which is sold to the poor at a low price, and is much liked by those who are accustomed to it.

To Make Stilton Cheese.

548. Put the evening's milk into shallow pans to throw up the cream; in the morning drain off about three parts of the thin milk from below, and take what remains with the cream and mix it with the morning's meal of milk. Warm it to the usual degree for cheese, and put in a small bit of rennet, about half as much as for common cheese. It will take proportionably longer to form the curd (say eleven o'clock). Scald and clean the pans you have taken the cream from, and lay full-sized cheese strainers in them; and as you take the curd from the tub, lay it on these cloths, and tie the corners over, but not tight, leaving the whey to drain quietly off till the evening, by which time it will probably have set into a sufficiently solid mass, and may be turned out into milk-pans (pancheons); but if the whey has not all come away, the cloths may be tightened a little, and left till morning, when it should be turned into the pancheon, and with a clean knife cut across both ways, in pieces about three inches broad. Set the pancheon on a table, where also place your cheese vat (a deep tin with holes at the sides on a board to fit it). Take up one of the pieces of curd in your hand, break it moderately small, and lay it lightly in the vat, then take a small handful of salt and sprinkle over it; then another lump of curd, and salt again, and so on till you have heaped up as much as the tin will hold without pressing it. Put no weight at all upon it. The salt will cause more whey to run out, and by next day the curd will have sunk down level, or within the tin. Turn it over, and let what was top yesterday be now underneath; or if you had not sufficient curd to fill it at first, you may now fill it, and let it stand

another day. The day after it has been turned over, turn upon a cloth strainer; then lift off the tin, warp calico round the cheese, and slip the tin over it again. Repeat this five or six days, changing the cloth daily as long as any moisture drains from the cheese, and taking care each time to let it stand on the *other* end. At the end of the time the cheese should be firm enough to stand, and the tin may be dispensed with; but it will be desirable to pin a cloth round it for a few days longer. Excepting in very hot weather, there should be a fire in the room where the cheeses are kept. They are more easily made of new milk, though, of course, not so rich-tasted.

To Make Yorkshire Blue Milk Cheese.

549. This cheese is still used in Yorkshire, to send out into the fields with bread and ale, for the refreshment of the agricultural labourers. The dairywoman who makes this cheese is expected to be at work by four o'clock in the morning, as, in summer, by a few hours later, the skimmed milk would be turning sour. The milk is placed in the cheese-kettle, and heated to blood heat; the practised dairywoman ascertains this by her hand; but the more accurate method is to raise the temperature to 90 degrees. The rennet is then added, and as soon as curd is formed, it is removed into a perforated butter-trough, when the whey is drained off, and the process of making the cheese proceeds in the ordinary way. (See par. 547.)

To Make Sage Cheese.

550. Bruise the tops of young red sage in a mortar with some leaves of spinach, and squeeze the juice; mix it with the rennet in the milk, more or less, according to the preferred colour and taste. When the curd is come, break it gently, and put it in with the skimmer, till it is pressed two inches above the vat. Press it eight or ten hours. Salt it, and turn every day.

To Make Cream Cheese.

551. Put five quarts of strippings, that is, the last of the milk, into a pan with two spoonfuls of rennet. When the curd is come, strike it down two or three times with the skimming-dish just to break it. Let it stand two hours, then spread a cheese-cloth on a sieve, put the curd on it, and let the whey drain; break the curd a little with the hand, and put it into a vat with a two-pound weight upon it. Let it stand twelve hours, take it out, and bind a fillet round. Turn every

day till dry, from one board to another; cover with nettles, or clean dock leaves, and place between two pewter plates to ripen. If the weather be warm, it will be ready in three weeks.

Another Mode.—Have ready a kettle of boiling water, put five quarts of new milk into a pan, with five pints of cold water and five of hot; when of a proper heat put in as much rennet as will bring it in twenty minutes, likewise a bit of sugar. When come, strike the skimmer three or four times down, and leave it on the curd. In an hour or two lade it into the vat without touching it; put a two-pound weight on it when the whey has run from it, and the vat is full, then proceed as above.

To Make Rush Cream Cheese.

552. To a quart of fresh cream put a pint of new milk, warm enough to raise the cream to 90 degrees Fahrenheit, with a bit of sugar, and a little rennet. Set near the fire till the curd comes; fill a vat, made in the form of a brick, of wheat straw, or rushes sewed together. Have ready a square of straw, or rushes sewed flat, to rest the vat on, and another to cover it, the vat being open at top and bottom. Next day take it out, and change it as above, to ripen. A half-pound weight will be sufficient to put on it.

To Make Curds and Whey Immediately.

553. Into a glass of new milk put half a teaspoonful of solution of citric acid. The milk will be curdled immediately, and the whey clear and acid.

CHAPTER IV.—BEE-KEEPING.

554. Bees are kept for the purpose of making honey, either for home use or for sale, by which last plan the poor man may realize a considerable sum during the year. Cobbett asserted, in his off-hand way, that a hive of bees produced honey yearly to the value of two bushels of wheat, which, at the present prices would be 17s., or equivalent to about 30lb. of honey, a large *average* produce of each hive. The editor of the *Family Economist* begins his account of bees by stating, that a bee-keeper may "realize £10 to £15 a year, by the culture of bees on a moderate scale." In a recent little work on bees by Mr. Wood, published by Messrs. Routledge, one bee-keeper is stated to have "made £20 a-year for three successive years:" and another

"cleared nearly £100 in one year by bees." He also says, that "fifty or sixty pounds (of honey) have not unfrequently been obtained from a single hive in a season, and occasionally as much as 100 lb., whilst from a set of collateral boxes 110 lb. are mentioned; and Cotton states, that as much as 210 lb. have really been stored in a single season by a single stock similarly situated in a roomy trebled habitation." These statements are, I believe, somewhat exaggerated; but, nevertheless, as the profit is considerable, *when compared with the outlay*, bee-keeping is well worth the attention of the man who has little or no capital to lay out in a more profitable speculation.

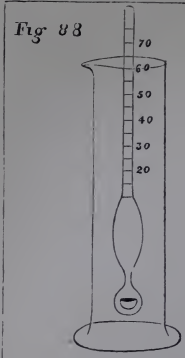
Sect. 1.—Method of Obtaining Bees.

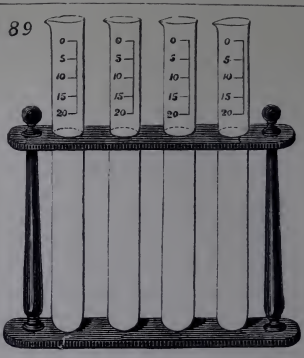
555. Bees are obtained by purchase of a hive or swarm, which should be effected in spring. A recently-settled swarm in a new hive should be selected, weighing not less than four or five pounds, and costing on the average 10s.; a second and later swarm is not so valuable, and seldom weighs more than half the above weight. If the attempt to begin keeping bees is made in the autumn, a hive full of honey should be bought; but even then it should be a swarm *of the same year*, and should weigh from 25 lb. to 30 lb., costing about 20s. To remove this to your own premises is the next thing, and this requires the hive to be loosened from the footboard and supported on some little blocks of wood a few hours before the intended operation. Then take a board and lift the hive quickly, yet steadily, upon it, closing the usual orifice by a piece of fine perforated zinc. If very full of honey, the whole may be now inverted to avoid detaching the combs, and in either case it may be carried by hand to its new resting-place, where it is to be steadily deposited, and, after a few moments, the zinc withdrawn.

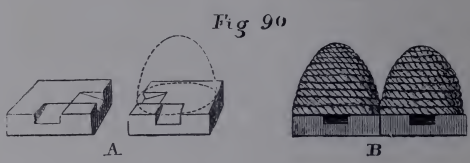
Sect. 2.—Hives and their Management.

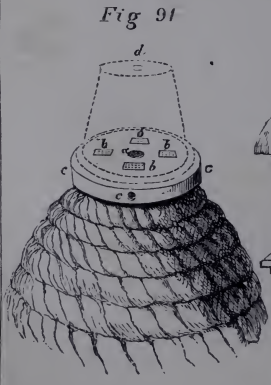
556. The ordinary Straw Hive is all that is really required; and even with this alone all the honey may be saved which the bees can spare, without any unnecessary loss of their lives by smoking. Various other hives are used by some bee-keepers, on the principle of excluding the bees from certain parts and admitting them to others, by altering the amount of heat and ventilation; but this may equally be effected on the plan which will be presently described with the common straw hive, protected only by a covering, or small shed, from the weather.

557. The Usual Management of Bees in England is that of annual destruction and renewal, which is a very extravagant plan, and









Figs. 88 & 89.—HYDROMETER AND LACTOMETER.
Figs. 90, 91, 92.—BEE HIVES.

objectionable, also, on the ground of needless cruelty. In other countries it is the custom, and gradually becoming so in this, to take a part of the produce, and leave the remainder for the winter sustenance. For this purpose, some place one hive upon another, and in the autumn remove the upper one; others turn out their hives, and cut out as much honey and comb as they think the bees can spare. In either way, from 20 lb. to 30 lb. of honey are obtained from each hive, while the stock of bees is reserved for the next year. Cobbett was of opinion that the bees, if saved, would die of old age the next year; but this is now proved to be a fallacy, and has led to the sacrifice of many millions of bees unnecessarily. In England the heaviest and the lightest stocks are every year chosen for destruction, and the bees smoked; so that, if twenty stocks are in existence, ten are taken, and ten left for next year, altogether producing, we will say, 300 lb. of honey. The foregoing method would give 400 lb., on the average of 20 lb. per stock; but both may be, and are, improved upon in England by the method at present adopted among some few intelligent bee-keepers, one of whom, celebrated for his skill in this department, has laid it down as a rule that *bees should never be killed.* Prevention of swarming is the grand principle upon which this plan is conducted, and it is effected by giving them increased room as fast as they require it. The queen bee lays from 10,000 to 30,000 eggs annually, which must first be provided for by the working bees, after which they store honey as fast as they can. But when a swarm goes off, they have no time to gather honey for more than their own winter wants; and very often, in a bad year, a stock full of bees will be without any of their natural food. If, however, the swarming is prevented, the bees which nursed the grubs in the early part of the season are sufficient to do the whole work of the hive in that respect, and the others lay up honey rapidly without loss of time. In order to give the spare room which is required to prevent this swarming, if the bees are in straw hives, proceed as follows:—Procure two boards an inch and a half thick, or perhaps a little more, and of a size a little larger than the base of the hives. Cut a sloping way out of two adjoining sides, the breadth of the mouth of the hive, and reaching from that part to the edge of the board. These roadways have two purposes—first, they serve to drain the hive of all superfluous matter; and, secondly, they serve, by juxtaposition, to effect a means of communication between the two hives, (see *fig.* 90 A, showing the boards ready prepared.) Before swarming time, a hive full of honey is to be placed on one of these, and an

empty hive on the other, with a piece of wood covering the narrow vacant space between them (see *fig.* 90, B). Next, stop up the door-way of the full hive, so that the bees cannot avoid passing out through the empty one, and shift both on the foot-board, until the new entrance is opposite the situation of the old one, when, by sprinkling a little honey, the bees soon become reconciled to the change. In this way, double the former room is given, while the queen and her nurses set to work to rear a fresh brood, and the honey-storers fill the new hive with honey. When this last also is filled, it must be removed in the following way:—A fine day should be selected for this purpose, when most of the bees are out at work; then cut off the passage between the two hives by slipping a piece of metal or wood between them. Slip the old entrance back to its old place, and stop up the new one. At this time, if there is a great commotion in the new hive, it is a sign that the queen is there, and it is necessary to postpone the removal till she has left it, in which case the separation must be removed. But usually she is in the old hive, and no notice is taken of the change in that case, and the two may be left quiet till the evening, when, a little before dark, the entrance to the new hive may be opened, and the imprisoned bees immediately fly out to seek their queen, and find their way to the old hive. The new one may now be removed with its contents, substituting another empty one in its place, and treating that exactly as was done before. In this way a hive full of honey is obtained early in the summer, without destroying a single bee, and with the prospect of obtaining a second store before the end of the season. But, in order to *ensure* the continuance of the queen bee in the old hive, it is only necessary to keep down the temperature of the new one by ventilation, which is effected by introducing a piece of perforated zinc in the top of the straw hive. No queen bee will lay her eggs in a temperature below 80 degrees, and if the new hive is maintained beneath this there is no danger of any such result. She will, on the contrary, in that case remain in the old hive to lay her eggs, where the workers also will deposit the pollen from the flowers to form the bee-bread for the grubs, while in the ventilated hive nothing will be stored but the finest wax and honey. The holes of the zinc will however be constantly filled up by the bees, and must be as regularly opened with a sharp instrument. A *modification* of this plan, suitable to weak hives, consists in placing a ventilated glass or flower-pot, on the top of the hive, and opening a communication with this. If the glass is used, it must be shaded from the light by a straw

cone. *Fig.* 91 shows this in operation; and for its effective working it is only necessary to fix a thick board on the top of the hive communicating with it by a central hole (*a*); around this are ranged other holes, bored obliquely outwards, and stopped with perforated plates, but so as to admit of a current of air which passes out through the top of the glass or pot (*d*); this keeps the temperature low enough to prevent the queen from entering the glass. The bees will, also, here stop up the small holes; but they may easily be kept open by passing a piece of wire. The outer holes require stopping with corks in cold weather, or until the bees begin to work. In a good season this pot will be filled with honey in a week, and may then be removed by carefully slipping *two* pieces of mill-board or metal between it and the board, and then removing the pot with one and leaving the other to cover the hole. If this is done in the evening, and the pot is placed bottom upwards, without the cover, near the mouth of the hive, and tapped occasionally with a long stick, the bees all come out of it and pass into the hive, upon which the honey may be removed, and the pot, or a fresh one, replaced; allowing the bees to enter it as before, by sliding the piece of metal away.

558. A Box, or Wooden Hive, is preferred by some people; but it is, I believe, inferior in every respect to the straw hive on the above principle, being hotter in summer and colder in winter, than that material. Nevertheless, if wooden boxes are preferred, they may be made on the same principle as before mentioned, with a greater facility of effecting the communication between the two hives, because the two sides being perpendicular, it is only necessary to place them with corresponding holes, and the object is effected.

559. Compound Hives are constructed nearly on the principle or those described in the last two paragraphs, but with slight differences in the detail. They are of three kinds.—1st, the *ascending;* 2nd, the *collateral;* 3rd, the *descending*, or Nadir hive. The ascending and descending hives give increased trouble to the bees, because they have a long transit to pass through the body of the hives before they reach that in which they are to deposit their honey, and this is the chief defect of that described in par. 557. The collateral hive is therefore the kind which is best adapted for the purpose, but it is complicated and expensive as designed by Mr. Nutt, and not always answering the purpose for which it is designed. In it, as in the previously-described hives, the ventilating principle is the grand secret; and in all cases the queen bee will deposit her eggs in the hottest part of the whole

apparatus, which in it is the central box, or "pavilion," as he terms it. Here are the brood-combs, which are always kept warm, while the side boxes are ventilated beyond the control of the bees, and in them the honey and wax are deposited. By a proper management of the numerous slides and connections, the bee-keeper can force his bees to work when he likes, and can remove his honey without destroying a single bee; but it requires constant watching, without which, in this changeable climate, the temperature is reduced too much, and the bees refuse to work. At all events, in practice it is found that, even with the most careful supervision, such accidents as a barren hive or a swarm in the side boxes occasionally occur.

560. Mr. Grant's Hive is the best of all, being a modification of the straw hive; and the collateral boxes in his plan are useful appendages to it. *Fig.* 92 shows this hive, with its entrance at the bottom, and a projecting footboard or landing-place under cover of the portico, so that when the bees hurry home in numbers, on the approach of rain, they may not be drenched while waiting to enter. The compartments at the sides are moveable boxes, about ten inches square, and one inch thick, with a glass window, closed by a shutter, to each. These are better placed at the back, so that the observer may be out of the way of the bees; and if they are made large enough to enclose straw hives, it will be all the better. Each box has its own separate entrance and footboard; and to each, as well as to the hive, may be affixed a bell-glass, as in par. 557. A moveable roof, light and warm, covers the whole, and is taken on and off without difficulty. A tube of communication, which can be opened or closed at pleasure from the outside, extends from the central hive to each side box, so that the bees can pass freely when the owner pleases, and the whole may be treated like the hive alluded to in par. 557.

561. The Situation chosen for bees should be dry and airy, yet well protected from the prevailing winds. A canopy should be provided, with an end guard from the wind as well; but damp is the worst enemy of all. The footboard should be securely fixed upon one or more strong posts, which should be kept well tarred to prevent the incursions of the ant, and protected by an overhanging piece of metal, to keep off mice and rats.

562. Honey-taking and Swarming require some little experience, not only to know *how* to effect the object, but also *when* it should be attempted. Two things are to be considered—1st, to obtain as much honey as possible, without injury to the bees; and, 2ndly, to ensure the proper

number in the swarm against the next year. If, however, the honey is taken too soon, the bees will be checked in their labour; and if the swarms are multiplied it will be at the expense of the honey. The bee-keeper will therefore make a compromise, founded on experience, which tells him exactly how to balance the two so as to obtain as much honey *in a series of years* as can possibly be effected. It is very difficult to estimate the quantity of honey made in a given time, but supposing the cap (*see* par. 557) to be used upon the hive of Mr. Grant, it will be found that nearly one pound per day will be deposited altogether in each hive up to the end of July—that is to say, for about six weeks, after which, in most seasons, they will require to be allowed to lay up their winter's store.

563. Fumigation, I have shown, should never be practised under ordinary circumstances; but if the hive is a single one, and it is supposed to contain more honey than will be required for the winter, the plan of fumigation may be tried with the intention of cutting out part of the honey. There are several substances which stupefy the bee, including tobacco, which, however, gives rather an unpleasant taste to the honey. The best that can be used is the common puff-ball (*lycoperdon*), which may be found in most fields where the mushroom grows; or it may be purchased at the herbalist's. When dry, this burns readily, especially if it has been dipped in a solution of nitre. The best way of introducing the smoke, is to burn the puff-ball in a box with two pipes to it, one of which fits into a pair of bellows, and the other, small and long, enters the mouth of the hive. In a few seconds after working the bellows, the bees are heard to fall to the bottom, and the hive may then be removed to get at the honey in security. The side-combs should be chosen in preference, because the young brood are generally in the centre. Immediately after removing them the hive should be replaced, for the intoxication does not last many minutes. If, however, the heat has been too great, the bees are often destroyed. *Swarming* bees have always a tendency to settle somewhere, and if they have not a hive to enter, will fix upon the nearest branch of a tree, or other accessible substance. It is supposed that the noise usually made with a key and an old kettle induces them to accelerate their choice, but this does not appear to be really the case, though it probably does no harm. As soon as it is fixed, it is better to have a spare hive always ready for them, with a piece of honeycomb in it; and when this is placed pretty near the hive, there will seldom be any occasion for such a noise and tumult, as well as

trouble in following the swarming cast. But if placed near them too soon, it will only be robbed of its honey, and will often also contain a number of wasps, which will tend to keep away the swarm for whom it was intended. No more than one swarm for increasing the stock should be taken from each hive during the season; and if, by accident, more should come forth, it should be returned to the parent stock by very slight fumigation, and dashing it in cold water, after which the bees may be allowed to climb up an inclined board, so as to reach their old hive, securing at the same time the young queen, and destroying her. Sometimes a hive is too weak to stand the winter, being altogether under 20 lb. in weight, in this case it is better to fumigate them; and while in this state they should be sprinkled with honey, and then swept up in a heap, after which a weak hive may be carefully lifted from its seat, the drunken bees placed on the footboard, and the hive restored to its old position, upon which the honey on the stupefied bees makes the others lick them, and cements the friendship between them.

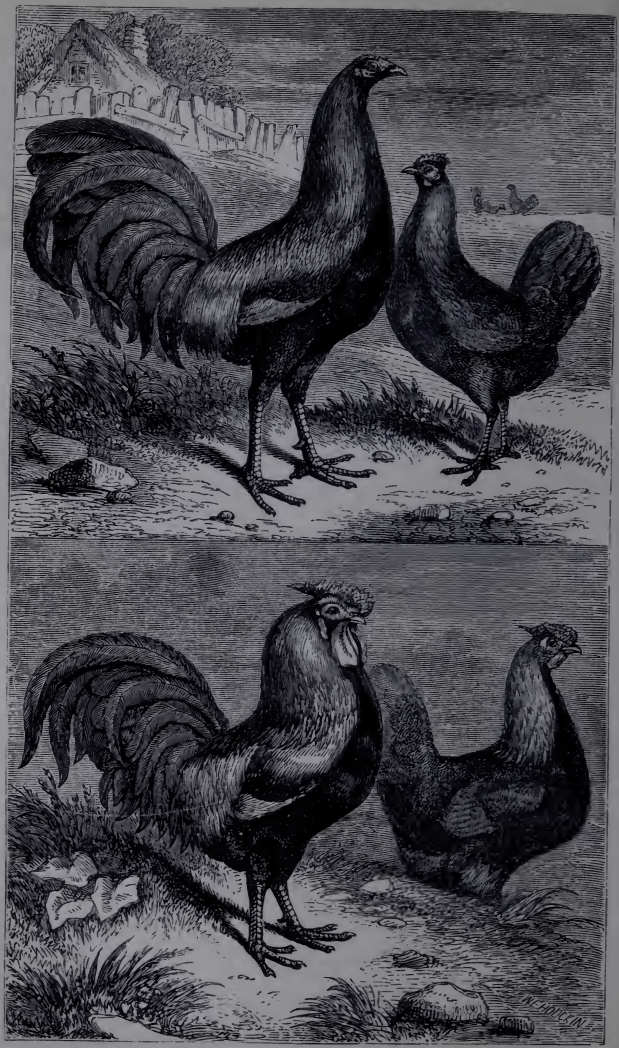
Sect. 3.—Profit of Bee-keeping.

564. The Average Profit per hive will vary greatly according to the season, as in some wet seasons the bees do not gather honey enough to keep them through the winter, and they must then be fed with sugar and water, or honey, as long as they require it. I believe that 20 lb. of honey per single hive may be considered the average produce, taking one year with another, and calculating upon all the accidents to which these insects are subject. But even this is an enormous addition to the cottager's means of living, and will give him, on ten stocks, enough to pay his rent and find him food for a pig. Bee-keeping should therefore be encouraged in all rural districts, and even in towns it is astonishing how well the bees will thrive, although they may have to fly a mile or two extra every day.

CHAPTER V.—POULTRY-KEEPING.

Sect. 1.—Varieties of Poultry.

565. The Various Kinds of Poultry which may be kept with a view to economy, are—1st, the *English game fowl;* 2nd, the *Dorking;* 3rd, the *Spanish;* 4th, the *Cochin China* and *Bramahpootra;* 5th, the *Hamburg;* and 6th, the *Poland.* Besides which may be enumerated



GAME FOWL AND DORKINGS.

as varieties which do not succeed in point of economy, but which are prized solely for their rarity—the *sultans*, the endless sorts of *bantams*, and the *turkey*, *pea-fowl*, and *guinea-fowl*; while, lastly, the *goose* and *common duck*, and especially the Aylesbury breed, may be reared with great advantage under favourable circumstances.

Game Fowl.

566. The English Game Fowl (*fig.* 93) is of all breeds the most beautiful, and indeed will bear comparison in this respect with almost any known bird. The cock carries himself proudly, yet gracefully; his port and bearing proclaim his fiery spirit and undaunted mettle, which are not belied by his wonderful endurance of punishment, for while prostrate, and even at his last gasp, he will often rise and make an effort to revenge himself, falling dead perhaps as soon as he has succeeded. When in good plumage the feathers are hard. crisp, close-fitting, and glossy. The body should be in such good proportion that the fowl will exactly balance when placed breast downwards on the hand. The wings should be wide and powerful at the shoulders, and the thighs muscular. Size is not a point of merit, the cocks weighing from three and a half to four and a half or even five pounds, and the hens considerably less. The colours are generally one or other of the following, but others are occasionally seen, viz.:—1st, *reds* (black-breasted, and otherwise); 2nd, *blacks* and *brassy-winged*; 3rd, *duck wings*, and other *greys* and *blues*; 4th, *white*, with *red* and *ginger piles*. The legs agree in colour with that of the body. This breed has been preserved in great purity for many years for its fighting propensities, and it is still kept up by some for that purpose, however closely the practice may be concealed. It is, however, also valuable as a means of improving some of the other sorts, and, in point of flavour, it is superior to all; but its skin is generally yellow, and therefore unfit for boiling. The hen also is not so good a layer as some others.

Dorking.

567. The Dorking Fowl (*fig.* 94) is of good size, with a compact and plump form, short neck, short white legs, *five toes*, a full rose, or sometimes a single comb, and a large breast. In plumage it is either white or coloured, the two being distinct varieties. It is difficult to breed these fowls to a very large size, but the flesh is of excellent quality, and the hen is a very close sitter; but the chickens are delicate, and they require a fine genial soil with a wide range, without

which the chickens die off in great numbers. The colours are as follows—1st, Lord Hill's *slates;* 2nd, the *greys;* 3rd, the *speckled;* 4th, the *brown* hens, with *black* breasted *red* cocks; and, 5th, the *white.*

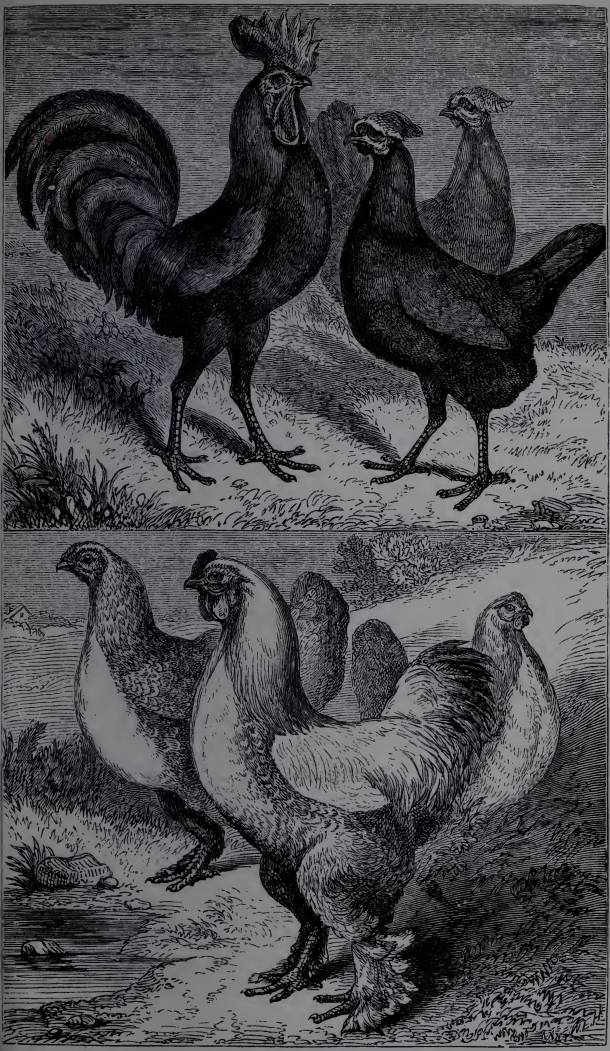
Spanish Fowls.

568. The Spanish Fowl (*fig.* 95) is almost invariably black, with a white face; but there is also a white variety of this kind. The Andalusian, which is *blue*, is likewise considered to belong to the Spanish division. The true Spanish requires the following points:—The white face of the hen, as well as the cock, should extend from the comb downwards, including the entire face, and meeting beneath in a white cravat, hidden by the wattles, the white being pure unstained with red. The cock should have a noble and gallant bearing, almost like that of the game-cock, though differing in shape; and the plumage should be glossy and perfectly black, with a brilliant metallic lustre. The legs clean-made, blue, and long. The chief drawbacks in this breed are the delicacy of the chickens, and their late maturity. The hens lay a large egg, and in considerable number, being very little inclined to sit. The chickens hatch out black, with a little mixture of dull white or yellow. These fowls require considerable warmth in the winter, without which their combs are very apt to be frozen.

Cochin Chinas, Malays, and Bramahpootras.

569. These are very closely allied; the last-named being the latest importation, and, it is said, the most valuable kind. It is shown at *fig.* 96. The Cochin China is admired for its large size, its handsome appearance (?), and the brightness of its colours; but more especially for its laying properties, and gentle, quiet disposition. The chickens are also exceedingly hardy. A first-class fowl should be large, square, and compact; full in the chest, deep in the keel, and broad across the loins and hind-quarters. The head is delicately shaped, with a short bill, and the comb of a fine texture, rather small, perfectly single, straight, and equally serrated; the wings should be small and closely folded; tail short and horizontal; legs very short, yellow, and heavily feathered. The regular colours are *yellow*, *buff*, and *cinnamon*, *grouse*, *partridge*, and *cuckoo*, the *black*, and the *white Cochins.* The *Malay* is a large and heavy fowl, with close and hard feathers, from which circumstance it often weighs more than it appears to do. It stands high, with a very upright gait, the legs being long, and the thighs remarkably long, strong, and firm, while the tarsi are of moderate length,

Figs. 95, 96.



SPANISH FOWLS AND BRAHMAPOOTRAS.

POLAND FOWLS AND SPECKLED HAMBURGS.

round, stout, and of a yellow colour. The tail is long and drooping; the head snake-shaped. The comb is like a half-strawberry, and naturally resembles that of the game-cock when cut. The neck is rope-like and close-feathered, and there is little or no wattle. The eye is pearl-like, and the bill of the hawk shape, without stain. They are early layers; the egg being of medium size, with a tinted shell. The chickens are ungainly-looking animals, and fledge slowly. The cocks average ten lb. in weight, and the hens 9 lb. The former are inveterate fighters, and almost equal to the English game-cock in bravery. The *Bramahpootras* have lately been introduced from America, and are now considered by many people superior to both the Cochin and the Malay. They appear to be a distinct variety, since their produce never degenerate into Cochin Chinas. The pure breed should be large and weighty, of a free, majestic bearing, alike removed from the waddle of the Cochin China and the upright carriage of the Malay; short in the leg and neck, wide and full in the breast, *which is much larger than that of the Cochin*, and wide and deep in the body; legs yellow and well feathered, but not smothered in feathers like the best Cochins; head with a slight fulness over the eye, which gives breadth to the top of the head; tail short, but otherwise full in size and spread, that of the cock opening into a fan; comb either single, or a peacomb, which latter should be of a triple character; colours *black*, *white*, and *grey*, and each sort coming true to its colour, in which respect this fowl differs from the Cochins, which are never to be depended on. This is a remarkably useful and hardy fowl, laying large eggs, foraging well when at liberty, and good sitters and mothers. The chickens fledge more kindly than the Cochins, grow fast, and are very hardy. These birds, when full-grown, weigh from twenty-two lb. to twenty-five lb. the pair. The chief objection is their tendency to roam, as they are not satisfied unless they have some acres of land to wander over; but when thus gratified they will find food for themselves, and live on much less than the Cochins, which, though great eaters, will not seek for their food, but must have it all provided for them.

Hamburgs and Polands.

570. These Fowls may be classed together, especially as there is a great difference of opinion as to their origin and distinctive points. The Hamburg (*fig.* 98) is a medium-sized fowl, with a brisk and spirited bearing, a brilliantly-red double comb, ending in a spike at the back,

taper blue legs, ample tail, exact markings, and a well-developed white deaf-ear. They are profitable fowls to keep where eggs are required for home-consumption; they are also non-sitters, and consequently may be made to lay all the year round, except when moulting, being excellent layers, and not large eaters; but the dealers do not give the same price for them as for larger eggs, those of the Hamburg fowl being very small. They forage well, and do not bear close confinement. The colours are as follows:—1st, the *gold* and *silver spangled*, in which the feathers have a spot either of yellow or white; 2nd, *pencilled*, also gold and silver, according to the colour, but each feather being divided into bars; and, 3rd, the *black* with white ear-lobes. The Poland Fowl is very beautiful, and of good useful qualities also. The chief distinguishing characteristic is the possessing of a full, large, round, compact tuft on the head (see *fig.* 97). The form is neat and compact, and of medium size, with full, plump bodies and breasts, lead-coloured legs, and ample tails. They are good layers, resembling the Hamburgs in this respect. The colours are the following:—1st, *black*, with white tuft, which, to be perfect, should have little or no black; 2nd, *gold* and *silver Polands*, with tufts of a corresponding colour; 3rd, *yellow*, *blue*, *buff*, or *spangled*, and *laced*, all recently-introduced varieties. The latest importation of all, called the *Fowls of the Sultan*, appears to be of this kind, but entirely white.

Bantams.

571. Bantams are beautiful little fowls of all colours; but those most prized are the *gold-laced*, *silver-laced*, *white*, *black*, and *game*. The feathery-legged bantams are now almost entirely out of date. None of them can be reared or kept for any purpose but as pets; and though their flesh is good, and their eggs high and well flavoured, yet the size of the bird and egg is so small as to make them far from serviceable, in proportion to their cost.

The Persian.

572. The Persian, or *rumpless fowl*, the *frizzled*, or *Friesland*, the *silky* and the *Russian*, as well as the *bakies*, or *dumpies*, have no peculiar merit, except their rarity and beauty, and belong rather to the fancier than to the ordinary poultry-yard. To this class belong also the *ptarmigan*, another *silky Cochin*.

The Turkey.

573. The Turkey is undoubtedly an American bird, and must have been introduced into Europe since the discovery of that hemisphere. The name is therefore a misnomer, as the bird has nothing to do with Turkey in Europe or Asia. It is found wild at the present day nearly all over the more temperate parts of the continent of America, where it is irregularly migratory and gregarious, and forms a most valuable article of food. As domesticated in Europe, it appears as the well-known denizen of the farm-yard, where the proud strut of the cock, with his expanded tail and lowered wings, make him the admiration, as well as the terror, of the juvenile visiter. The adult turkey is very hardy, and braves our winters with impunity, preferring even the imperfect shelter of the adjacent trees to any in-door lodging. But in severe frosts these birds are not to be left out with impunity, as their legs and feet are apt to become frost bitten, and they should therefore be compelled to enter some out-house at such times; and, indeed, at all times they incur great risk from foxes and two-legged thieves, by indulging them in their fondness for their natural perches. Turkeys are very fond of roaming, and will not long thrive without being allowed to wander over farm-land, where they pick up and greedily devour insects of all kinds, as well as the tender heads of turnips, &c. There are several distinct strains of the domestic turkey, but not enough to make them into varieties: of these the chief are, the *black Norfolk*, the *white*, the *grey*, the *Irish*, and the *French*. The first of these are common in Norfolk, Cambridge, and Suffolk, and grow to a great size. The Irish are also fine, but are a long while reaching maturity. In choosing turkeys for breeding, the cock should be selected with a broad breast, clean legs, wings and tail ample and well proportioned; eyes bright, and the carunculated skin of the head and neck should be fully developed and changeable in colour. The young cock is sufficiently mature for breeding purposes at a year old; but he does not arrive at perfection till three years old, and lasts till he is double that age. The hen should be plump, lively, and animated, with plumage similar to the cock with which she is to be mated, so as to avoid any mixing of colours. She breeds at a year old, or sometimes at rather less than that age, if she has been a late hatch of the previous year. The laying generally commences in the middle of March, and is indicated by the hen assuming a degree of importance and restlessness which is new to her. She should now be closely watched, for she

is otherwise very likely "to steal her nest," as the act of laying in an out-of-the-way place is called. To avoid this, a nest of straw, lined with dry leaves, should be made in some quiet out-house, and the hen confined there every morning until she has deposited her egg. The turkey is a good sitter, and will sometimes lay one or two eggs after she has begun to sit, and these should be removed, as they would not hatch at the right time. Scarcely any thing will induce her to leave her nest, and she must be supplied with food and water close by, and within her reach. From the 26th to the 31st day the hatch takes place, and the chicks should be carefully removed by a person to whom the old bird is well accustomed, as fast as they are hatched, and kept in a warm basket until all have made their appearance.

Pea-fowl.

574. The Pea-fowl is an ornamental bird only, and though good for the table, yet its habits are so rambling, and it eats so much food, that it can scarcely be kept for the sake of its produce. The management is the same as for the turkey.

Guinea-fowl.

575. The Guinea-fowl is less generally kept than the turkey, though in proportion to its size it fetches as good a price, or even better. It is said to resemble the pheasant in flavour, and is sometimes bought with that idea; but, as far as my judgment goes, it is not nearly so like that bird as a fine well-fed fowl. It, like the two last kinds, is of a very rambling disposition, and will not thrive except in rural districts. The hen must be watched still more closely than the turkey, when about to make her nest, which she does in the month of May. They mate in pairs, and the period of incubation is 26 days. When allowed to range at liberty over arable land, they require very little feeding, and hence they are kept by many people; but their habits are so wild that they give an immense degree of trouble. From the great mass of feathers the guinea-fowl looks larger than it is, as, when plucked, its size is *not greater* than that of a common fowl.

The Goose.

576. The Common Goose is undoubtedly a descendant of the wild grey-lag, though it has, by long domestication, lost the power of long flight, so well marked in that bird. Like it, however, it is gregarious; and when many flocks are kept together, they separate at night as

regularly as a family of children come home from school. The domestic goose is too well known to need description. One gander is required to three or four geese, which, in mild seasons, lay early and sit well. They should, therefore, be supplied while on the nest with food and water. Geese, though kept in large numbers in some localities, are profitless to those who have no run for them, as they require, besides a large supply of grass, plenty of grain of some kind, and without it they soon become diseased. Green geese are fattened on oatmeal and pease, mixed with skimmed milk or butter-milk; also, upon oats or barley; with this food they are ready for the table at four months old. But though geese cannot be advantageously *reared* without common land, yet they may be bought at four or five months old, and fattened at a profit. At this age they generally cost about 2s. 6d.; and if they are penned up, with a good run, and fed upon oats and plenty of lettuces and cabbages, they rapidly gain flesh, and increase in size. About a peck and a half to two pecks of oats per goose will be sufficient; and as the green food would be only the refuse of the garden, the cost of the oats—say, one shilling—is all that is to be added to the original price; or, in all, 3s. 6d. for a fat goose worth 5s. or 6s. at the least.

The Duck.

577. The Common Duck, or Tame Duck, as it is sometimes called, appears to be a domesticated variety of the mallard or wild-duck, but with one important difference, consisting in the practice of polygamy, instead of the invariable pairing, which is the habit of the wild-duck. Ducks require water much more than geese; and they do not graze, but are hearty feeders, devouring any thing that comes to hand, whether green vegetables, or meal, or potatoes, or meat—either raw or dressed, or, again, worms, slugs, and the larvæ of insects. A drake should be allowed four or five ducks; sometimes, however, six or seven will not be found too many. The female lays for more than three months, sometimes even producing as many as eighty eggs. The average, however, is not more than half this number. She will cover about twelve or fourteen, and is generally a steady sitter. Plenty of straw should be allowed her, as she always covers her eggs up when she leaves them, and she is often away an hour at a time, when the eggs are liable to be chilled if not well protected. The eggs are hatched at the end of a month, and the ducklings should be kept from

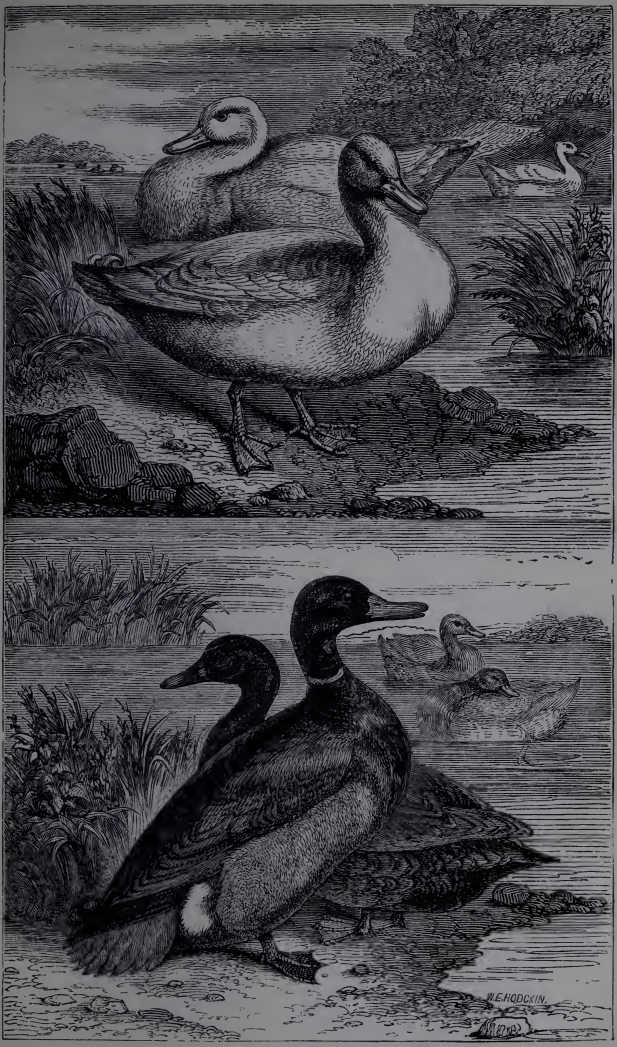
the water for the first week or ten days. They are easily reared on barley-meal and potatoes, with a little boiled cabbage added occasionally. The chief varieties are the *white Aylesbury* and the *Rouen*, besides numerous crosses of these and nondescript kinds. The white Aylesbury (*fig.* 99) should be large, with a perfectly white plumage, yellow feet, and a flesh-coloured bill. The *Rouen* (*fig.* 100) is a large dark-coloured variety, resembling the wild-duck in all respects but size.

Pigeons.

578. Pigeons are kept sometimes in the poultry-yard, but unless they are allowed full liberty to fly at large, and pick up a partial living on arable land, they are not profitable birds. Their varieties are so numerous as to require a handbook to themselves, if fully described; but for economical purposes, any of the common sorts will be found to answer better than the fancy pigeons.

Sect. 2.—Selection of Poultry.

579. The intending poultry-keeper will have first of all to decide upon the particular species of poultry to be kept, and then to make selection of the variety which shall compose the inhabitants of her pens. In reference to economy, I believe it is acknowledged that no species pay like fowls and ducks, which may also be very well kept together where there is any water for the latter, and a proper situation for the former. Turkeys and guinea-fowl will only pay in large flocks, kept by farmers, who are not incommoded by their roving propensities, or at all events not more so than is counterbalanced by the market-return. Many extensive breeders of the turkey maintain that they really do not pay as they ought to do, and that if all the grain they eat were charged to them, there would be little or no profit on the balance sheet. But as their wives receive the money and do not pay for the keep, it suits them to represent the cost as less than it is, because they would often have more difficulty in dipping into the master's pocket than into his granary. It becomes, therefore, in point of economy, a question only between the different breeds of fowls and ducks. Here, again, much depends upon the produce which is required. If for eggs alone, the Spanish or the Hamburg would be selected, as they are the best layers and seldom sit. In one poultry-yard I know of an average of 240 eggs per hen per year, all being



AYLESBURY AND ROUEN DUCKS.

pencilled Hamburgs. Cochin Chinas also lay well and early, but not so many as the two first named. For the table nothing beats the game-bird for roasting, or the Dorking for boiling; the latter is also as good as the former for roasting. If chickens, poults, or capons are desired, the best bird is a cross of the Bramahpootra or Cochin hen with the game-cock. These lay all the winter, and produce very fine cockerels at six months, and the chickens come early, and are also good, though not so neat as some other breeds, being unshapely at an early age. The hens are very early layers and good sitters, and the chickens are very hardy, though they do not lay a great number of eggs; but if this plan is adopted, the resulting cross must not be used for breeding, as its produce will not inherit with any certainty the good qualities of either parent. The Bramahpootra has a much better form for the table than the Cochin, and crosses with the game-bird equally well. Spanish birds are well-flavoured, and though dark-feathered, yet the skin is delicate; but the chickens are not hardy enough to rear with advantage. With regard to ducks, either the true Aylesbury, or the Rouen, or a cross between them, are far superior to all others; and one or other should be selected with great care as the foundation of the breed of these birds. Sometimes, however, the locality has much to do with the selection. Those who have a warm and sheltered situation, with a fine dry soil and an extensive range, will do well to try Spanish or Dorking fowls. But if the space is confined, and the yard cold or at all damp, no fowls will be so likely to succeed as the Cochins or Bramahpootras, which may often be reared with success where other birds would perish. Bramahs, however, will not be confined so easily as Cochins, but will get over a low fence. Game-fowls and Malays are also hardy, but they require liberty. Polands thrive on a dry soil, but will bear a moderate degree of confinement; while Hamburgs are hardy, but *will* have liberty or die. Geese require a common, and water also, though not to any great extent. Ducks should have water of a shallow character—as ditches or rivulets. Turkeys and game-fowls can only be reared with success upon a dry and warm soil, with plenty of run and a warm aspect.

Sect. 3.—Management of Poultry.

580. Whatever breed of fowls is selected must be provided for carefully, both by proper lodging and by feeding. The chief points required

are—1st, *a dry and warm lodging;* 2nd, *proper vegetable and animal food;* 3rd, *a supply of lime, pebbles, and dust;* 4th, *pure air and water;* and, 5th, *the proper rearing of the young.*

Lodging.

581. The Lodging for all fowls should be well sheltered from the weather; and if early eggs are desired, it should also be warm, as over a stable, or against a kitchen chimney. It should front the east or south, so as to catch the morning sun; and it should be ventilated with a window at each end, to be opened or shut at pleasure, so as to keep down the excessive heat of summer. The perches must be arranged according to the fowls to be kept; Cochins and Bramahs requiring a broad ledge only about a foot from the ground, while all others should be raised at least two feet, and should be square, with the corners rounded off. Boxes for nests are to be fixed about two feet from the ground, and in proportion to the number of hens. But, besides the fowl-house, a yard or run of some kind is desirable, unless they are to have the run of a wide, dry, and sandy common, or of an orchard or field; in which case they only require the house for protection at night, though even then a yard is desirable for the rearing of the young broods. When the hen has first hatched she should be put under a proper coop, one side of which is of solid board, and this protects her from the rain and sun, while the other is open and allows of the chickens getting through to pick up small insects, and to take the exercise which is necessary for all young animals.

Food, &c.

582. The natural food of all poultry consists partly of vegetables and partly of insects, and this is the case whether the bird is a common fowl or a swan, a turkey or a pigeon. When, therefore, fowls are penned up in confined yards, where they cannot obtain any insects at all, and where they are often deprived of all vegetable food but that contained in the grain upon which they are expected to thrive, the consequence often is that they become unhealthy. In all cases, it is a bad practice to under-feed poultry, and from the very first they should have a liberal supply of good and solid food. The store-hens should be got into laying condition as early as possible; and those intended for killing should be

kept in good condition, always ready for the spit, from which state they may readily be made as fat as some tastes require them to be, by a very short confinement. The grain should be good sound wheat, or barley, or hominy, or rice—not tail-wheat or refuse barley. Oatmeal or buck-wheat, made into cakes with barley-meal, is also good; and potatoes, steamed and mashed up with oatmeal or barley-meal, is a capital article of diet. Many poultry-keepers boil the grain, whether wheat, oats, maize, barley, or rice; this practice is generally adopted in France; but it does not appear that there is any great advantage in the plan, except in the case of maize, which is too hard for most fowls, unless softened by boiling or by steeping. In addition to these solid materials, greens of some kind should always be supplied for them to pick at; and where they are confined to a small range, and cannot procure insects, a supply of animal food must be afforded, or the quantity of eggs will be limited in extent. This is especially needful for the Cochin Chinas, whose quiet and indolent habits never permit them, even when at large, to obtain insects in abundance. Nothing answers better for this purpose than the refuse bones of a large family, with the meat and gristle attached to them, which the fowls will pick as clean as possible, and enjoy beyond description. When these cannot be procured in sufficient quantity, bullock's liver, or good horse-flesh, or some animal substance or other must be found; and in these days of large and extensive poultry-yards, the latter-mentioned article has been most extensively employed by the most successful breeders of prize fowls. In one establishment, I have strong reason to believe that many pounds of horse-flesh per week have been regularly consumed, at a trifling cost, which would have been increased twenty-fold by the use of beef or mutton. This is particularly necessary for procuring early eggs, as at that time insects and worms are rarely to be met with. For young chickens, boiled egg, or curd mixed with meal, is the best food.

583. The Process of Fattening will greatly depend upon circumstances. Spring-chickens may be put up as soon as the hen ceases to take care of them. In their pens they should be supplied with fine pebbles, but they do not take them in sufficient quantities, and hence their food must be pultaceous—as, for instance, bread and milk, barley-meal, or oatmeal mixed with potatoes and milk. When they are kept up long, a few grains of pepper will help the digestion. When chickens have the run of a farm-yard and plenty of food, they keep themselves in very good condition for the table, and their flesh

is sweet, juicy, and delicately tender; but for the market they are generally required to be more fat. Many people feed their pullets well, and keep them fat all the winter, and then kill them early in the spring, while full of flesh, and before they have laid themselves poor. In this way a considerable stock of early eggs is obtained when at a high price, and the birds are sold before they are rendered tough by a second year. Cramming is seldom practised with advantage for fowls; but for turkeys it is necessary, to produce the amount of flesh and fat which is thought desirable. But even for the former birds, in some cases, this plan is adopted, especially in the neighbourhood of London, where many are thus raised to a high weight by this system in a very short period, aided by crowding them in small dark pens, by which their natural restlessness is prevented from having full scope. In like manner, ducks are made to assume a great quantity of fat; but as their appetites are almost insatiable, they are never crammed. The same kind of food as for fowls soon makes them as fat as butter, if they are confined in the dark for a very short time.

584. Lime, Pebbles, and Dust are as necessary as corn for fowls; the first of these being in the nature of food for the making of the shells of the eggs. Hence it is that some fowls in confinement lay soft eggs—without shells, because they cannot obtain what they want. It is true that wheat and barley, especially the former, contain a considerable quantity of lime, but not enough for the shells of the eggs, and for this purpose *slack*-lime or old mortar must be afforded them. The latter is the best material, as it contains a proportion of sand, which acts as the natural aid to the triturating powers of the stomach. All fowls, therefore, but especially laying hens which have not their full liberty, should have access to a small heap of old mortar or slack-lime. But, beyond this, they all require pebbles to be taken into their gizzards for the purpose of aiding these powerful mills in grinding down the corn upon which they feed; and therefore these articles also must be placed within their reach, gravel being the best material for the purpose. Lastly, as fowls are prone to parasites, and are by nature induced to get rid of them by "bathering" in the dust, a supply of this article, *in a dry* state, should be afforded; for this there is nothing better than coal-ashes, or fine sand and coal ashes mixed, which last is undoubtedly the most appropriate cleansing material.

Air and Water.

585. Pure air and water need hardly be insisted on, as their advantages are well known to every one. The former is obtained by ventilating the roosting places at night, and by giving as much liberty as possible. The latter is best afforded by a running stream through the yard, however slow the supply may be. Whenever water is laid on, a draining-pipe, in the form of a half-circle is easily led across the yard, and kept constantly running, with ever so small a stream at one end, and a corresponding waste at the other; provided that it is so arranged that the dirt falling into it may be daily washed out.

Rearing.

586. The Rearing of Young Poultry begins with the obtaining of fertilized eggs; to effect which to advantage, the cock should not be mated with more than five or six hens, though, for edible eggs, he may be allowed ten or twelve. Where a breed is to be kept up or improved, one to three is the proper number; but for all ordinary purposes the above proportion is not too great. Where a large head of poultry is maintained at liberty, there is some difficulty in reconciling the cocks to one another; but if the new comers are introduced at the moulting season, they will be allowed to rest in quiet till the season of laying, and in the mean time have acquired the right of possession over the dunghill, as well as generally over a certain number of hens. It is, however, better in all yards to shut up each cock separately at night with the hens to which he is allotted; in that way they generally keep distinct, and no undesirable crosses are effected. An old cock generally becomes vicious, both to his own hens and to his rivals and their respective trains: when this is the case, he should be dismissed as a general nuisance. When a hen is about to sit, she shows her desire by ruffling her feathers and "clucking," wandering about in an uneasy manner, and sitting upon any eggs she can find, or, failing them, upon the nearest approach to them within her reach. Well-fed Dorkings are the earliest and best sitters, and will often rear a hatch in November, which, if taken care of and kept warm through the winter, are worth 8s. or 9s. a couple in February. Most hens, however, do not sit till April, May, or June, when chickens are easily reared without risk. In selecting a good sitter, she should be of a large size, well feathered, and with short legs. The number of eggs which she can

cover will vary, according to her size, from ten to fifteen. Some people set two hens together, and when the chickens come forth give them to one mother, reserving the other for a second hatch—and this answers well enough in the warm weather of summer; but in the spring and winter the heat of the mother's body is as much required by the chickens after they are hatched as while in the shell. Hens should be fed directly they leave the nest, but it is not a good plan to feed them at the nest, since it is a well-known fact that there is a great advantage in the periodical cooling of the egg for a short time each day, which causes a contraction of the air-vessel inside the shell, and consequent imbibition of fresh air, which is a kind of respiration daily carried on. Those who hatch chickens artificially, having discovered this law of nature, reduce the temperature a few degrees every day for a stated time with great advantage, and consequent security in hatching. In selecting eggs for setting, take the newest; those above a fortnight or three weeks are not to be depended on, though sometimes they will hatch at the end of double that period. At the end of twenty-one days the chick is ready to break the egg, and, as a rule, the more completely the hen and her brood are left to nature the better. Sometimes, however, assistance is required, or the chick will fail in its work and die inside the shell. When this is suspected, there can be no harm in breaking a small hole in the shell, *not in the membrane lining it.* If the proper time is arrived, this membrane will be free from blood, and almost dry; whereas, if otherwise, it will appear purple, and show minute blood-vessels ramifying upon it. In the latter case no harm has been done, but patience must be exercised, and perhaps on the next day the chick will deliver itself, or will then be fit to be delivered, by increasing the fracture little by little, and at intervals of two or three hours. If the hen is a quiet mother, and does not seem uneasy, it is better to leave her chickens with her until all are hatched; but sometimes she bustles about in the most officious manner as soon as one comes forth, and it this were allowed to remain, she would probably destroy all the others in her restless endeavours to make much of her first bantling. In such a case a warm basket of wool by the fire is the best alternative, where the chickens may be placed as they come out until all are hatched. In the depth of winter or in the cold of spring, artificial heat of some kind is required to rear chickens, and this is afforded in the cottages of the poor by allowing them to live in the same room with them; but in the gentleman's poultry-yard this plan must be

imitated either by allotting a pen placed at the back of the kitchen-chimney, or a stable-boiler or stove, or else by a warm stove specially devoted to the purpose, which, when there are many chickens, will soon pay for its fuel by the saving of the chickens. If the chickens look healthy, and their plumage of down soon dries and spreads out in a regular manner, all is well, especially if they run about strongly. Do not be in too great a hurry to get them to feed, as they require nothing for twenty-four hours, or thereabouts. By that time all are generally hatched; on returning the first chickens to the hen, and placing food before her, she entices them by her peculiar "cluck," and the little things soon begin to eat. Crumb of bread soaked in milk and water, and mixed with chopped egg or curd, is the best thing to begin with. Next mix with the bread a little finely-chopped meat instead of egg; and at the end of four or five days or a week, barley or oatmeal mixed with curds will be the best food. A shallow pan, made on the principle of preventing immersion—that is, with several sub-divisions on the surface, should be filled with water, and always kept within reach. After a fortnight, or three weeks, these chickens may be fed upon the same kind of food as that allotted to the older ones mentioned in par. 582. The management of young ducks is exactly the same as that of young chickens, excepting that they have a desire for water, which should not be gratified for the first few days, or they will, in cold weather, get the cramp, and die from drowning.

Sect. 4.—Trussing of Fowls and Management of Eggs.

587. Fowls are killed for the table without loss of blood, which would make them dry and insipid. The usual plan is to dislocate the neck by twisting it, or pulling it suddenly, taking the head in one hand and the neck in the other, as in drawing a cork. This last is a very simple and effectual plan, and causes instant death by separating the spinal cord. A smart blow on the back of the head with a heavy stick, will have the same effect. Ducks and geese are generally killed by passing a knife through their mouths into the brain, which lets out some proportion of their blood, while at the same time it kills them instantly.

588. Fowls, and Poultry in General, should not be trussed or plucked till cold, as the skin tears easily while warm. The inside is

then removed, but no water should be introduced, as there is no dirt occasioned if properly managed. After this, the liver and gizzard are prepared, by removing the lining of the one and the gall bladder of the other, and placed under their respective wings in fowls and turkeys, but kept as giblets in geese and ducks. The breastbone is very generally depressed by force, so as to make the bird look more plump, and as no harm is done by this, there is no reason to be given against its adoption. When poultry are to be cooked next day, put a wet cloth over them during the night after drawing them, and plunge them in cold water for an hour, by which they become much more tender.

Choice of Eggs.

589. In choosing Eggs, with reference to freshness, hold them to the light of a candle or lamp, surrounding them with the finger and thumb. If the whole egg looks of a transparent yellow, without any particles but those caused by dirt, it is fresh; if addled, or half-hatched, it is opaque; and if stale, the shell is mottled more or less, according to its degree.

To Preserve Eggs.

590. To preserve Eggs there are several methods adopted, all of which depend upon the exclusion of the air, by stopping up the pores of the shell, and by other means of excluding it from contact with the atmosphere. Bran and sand act to a certain extent by excluding air, but not sufficient to keep eggs long; for this purpose salt and lime in water make the best preservative. The following is an excellent receipt:—

To Keep Eggs.

591. *Best Method.*—Collect the eggs when quite fresh, smear them over with butter, tie them up in a cabbage net, and hang them from the ceiling of a cool room, not, however, subject to frost: every two or three days the point of suspension should be changed, by hooking them on to a fresh loop of the net, and thus changing the upper surface. This plan keeps eggs quite fresh for two or three months. The butter may be dispensed with if they are to be kept for a month or six weeks only.

Another Method.—Pour five quarts of boiling water over one lb. of common salt, and one oz. of saltpetre, when it is cold put

in seven oz. of *quick*-lime. Let it stand two or three days, frequently stirring it; when quite clear pour it on the eggs, which must be closely covered.

Another Method is, I believe, still more efficient, but rather more troublesome. It consists in making a thin mortar, by slacking some quicklime with water, and mixing it with sand until it is of the consistence of cream. This is to be kept for a fortnight, stirring and beating it occasionally, until all the tendency to set has gone by, and then the eggs are to be covered with it, adding a layer of mortar over each layer of eggs, and piling them up as high as the vessel will hold. The top must be kept constantly covered with water, or the lime and sand will become hard, and enclose all the eggs so firmly as to forbid their extraction. In this way I have known eggs kept sweet for many months.

Sect. 5.—Cost of Poultry.

592. The cost of keeping poultry is so great, when every thing is to be purchased at market-prices, that their produce will rarely be obtained much cheaper than it can be procured in the shops. The chief advantage, and a very great one, consists in the certainty of the freshness of the eggs; and to those who eat them plain boiled for breakfast every morning, this is of no light importance. A bad egg on the table is enough to destroy a delicate appetite; and yet, unless a very high price is paid for new-laid eggs to some neighbour upon whom entire dependence can be placed, such an event will occasionally happen. Even if they are not absolutely bad, yet many of the eggs purchased at the shops will turn out not fresh enough for the breakfast-table, and to most palates they are by no means satisfactory. Wherever, therefore, these articles are much used at that meal, fowls may be kept with advantage, in every point of view; but for procuring eggs for general domestic purposes, they will fail economically, except to the cottager or farmer's wife, each of whom have peculiar advantages. The following balance-sheet of a stock of poultry, consisting of one Spanish cock, three Dorking and three Spanish hens, kept in a close part of the suburbs of London, with a small yard only to run into, will show what is the cost of eggs in such a situation. The food is not priced higher than in the average of towns, and the only charge which might not always be incurred is that for gravel, lime, &c. The eggs are valued at 1½d. each, which, on the average, is about the value of *new-laid* eggs in that locality, or, in fact, rather beneath it.

TABLE OF COST AND PRODUCE OF POULTRY.

COST of FOOD, &c., for ONE COCK and SIX HENS, from July 12th, 1855, to July 12th, 1856.

DR.	£	s.	d.
Barley ... two bushels	0	12	6
Potatoes ... ,,	0	9	0
Rice ... ... 12 lb.	0	3	0
Oats ... ... four bushels	0	10	6
Cornchandler's sweepings ...	1	4	0
Greaves	0	2	6
Gravel and lime	0	2	6
Vegetables and butcher's offal, no charge.			
Prime cost of fowls	0	16	0
	£4	0	0

PRODUCE of ONE COCK and SIX HENS from July 12th, 1855, to July 12th, 1856.

CR.		
1855.		
July ...	13	eggs
August ...	73	,,
September	39	,,
October	—	
November	18	,,
December	18	,,
1856.		
January	19	,,
February	41	,,
March ...	67	,,
April	104	,,
May ...	61	,,
June ...	62	,,
July ...	32	,,
547 eggs, at 1½ each	£3	8 4½
3 Chickens killed	0	7 6
5 Ditto alive, value	0	5 0
2 Pullets, to supply the place of old hens worn out ...		—
Present value of stock	0	16 0
	£4	16 10½

According to this statement of account, the gain has been 16s. 10½d. in the year; but supposing the eggs to be valued at the average price in the shops, there must be deducted 547 halfpence, which would then make the balance a trifle the other way. In many situations, however, more advantageous to keeping poultry, the number of eggs would be at least double; and more chickens might be reared without loss. Hamburgs lay on the average about 230 to 240 eggs a piece, which, at eighteen for a shilling, will give 13s. 4d. as the yearly return in eggs for each hen, or about double, indeed, in some places treble her cost for keep. Where eggs and chickens also are desired, and a part of the stock is composed of Cochins, and the remainder Dorkings and Hamburgs, the first-named will lay eggs enough for the winter, and be ready to sit upon the earliest Dorking eggs, while the Hamburgs will keep up the supply of these after the Dorkings have done laying. In this way a much more profitable return may be made; but then it requires good capabilities in yards, buildings, run, &c., and a considerable knowledge of the treatment proper at all ages. A good Dorking hen is said to lay six dozen eggs (value 4s. to sell) and rear two broods of chickens, together amounting to thirty, at a profit altogether

of 15s., in addition to 4s., the value of the eggs. This, however, allows nothing for depreciation of stock, nor for accidents to young poultry, and is a very theoretical and sanguine calculation, which will seldom be realized.

CHAPTER VI.—RABBITS.

593. Rabbits, according to Cobbett, are very profitable—the young ones that are produced by three does, giving the poor man a meal twice a-week, all through the year. A doe breeds without injury seven litters a-year, and often brings nine or ten at a time, of which six only should be kept, or both the doe and her produce will become diseased. Each doe, with these limitations, will therefore rear forty two young ones, which, multiplied by three, gives 126 for the entire increase during the year, or more than two per week, the surplus being allowed for accidents and disease. The hutches should be kept very clean and dry, and a dark apartment must be allowed for the does to make their nest in, where they should not be disturbed on any account. They should be well fed on dandelion, carrots, parsnips, Swedish-turnips, strawberry leaves, ivy, wild parsnip, *but not cabbage*, at all events, in any quantity. A little oats and bran should also be given each day, and beyond this the rabbits really cost nothing. To a poor man, therefore, who has a family that can be useful in collecting food, the keeping of rabbits, either for home-use or for sale, is an object worthy of his careful consideration. It is quite true, as the labourer will tell you, that no stomach will take rabbit twice a-week all through the year, and especially tame rabbits, as usually kept in dirty hutches; but they will always find a sale at the nearest market, and the money thus obtained will go still farther in the purchase of a superior quality of animal food.

CHAPTER VII.—HOME-MADE BREAD.

Sect. 1.—Materials and Utensils.

594. Bread, often called "the staff of life," is one of the most important articles of domestic economy which can be advantageously made at home. The materials of which it is composed will be found described at length under Chapter 8, of the last Book, with the excep-

tion of a few used in the fancy articles, which come under the section on grocery, as currants, rice, &c.; or under those treating of milk and eggs. In addition to the three kinds of yeast described at page 92, the two following receipts are introduced here as varieties, the second more from curiosity than from any other motive, as alcohol is developed in it just as much as in the ordinary form:—

Patent Yeast.

Take one pound of malt and one ounce of hops, boil them for two hours in six quarts of water; let it stand till about blood warm, then stir in gently three-quarters of a pound of flour, and add three-quarters of a pint of yeast (which should always be reserved from the last made as stock), and let it stand to work for twenty-four hours, when it may be used or bottled. It will not keep more than a fortnight, but will do for stock when sour, though not for bread. It should be kept in bottles well corked in a cool place. In hot weather let the bottles stand in water. To make bread, use one quart of this yeast to two-and-a-half pecks of flour; set the sponge over night, and knead it in the morning.

Teetotaller's Yeast.

Dissolve three pounds of malt and three ounces of hops in two-and-a-half gallons of water, and boil them twenty minutes; strain the liquor into an open vessel; when nearly cold, add nearly one pint of teetotaller's yeast, and in twenty-four hours it will be ready for use. Bottle it, putting the corks in tightly. Half a pint of yeast will raise eighteen pounds of flour. Lay the leaven with a quart of milk or warm water over night, and when the bread is made up, it will take more warm water. Common yeast will *do* to make it with at first, but is not so good, the yeast being very thin.

Quantity Required.

595. The proper quantities of each kind of yeast to raise fourteen lb. of flour, are as follows:—

Brewer's yeast	4 oz.
German yeast	2 ,,
Patent yeast	12 ,,
Teetotaller's yeast	7 ,,
Hydrochloric acid, Bicarbonate of soda } of each	2 ,,

Utensils.

596. The utensils for making bread are not many, the chief being a good *oven;* or, if the wheat is to be ground, a *flour-mill* in addition. Besides these, a *kneading-trough* or *pan*, a *board*, a *girdle* for muffins, &c., and a few other articles, are all the utensils required.

597. The Flour-mill (*fig.* 101), adapted for private use, is now sold at a price which brings it within the reach of most families. The mill complete, with dressing apparatus, costs about £8 to £10; and will separate the flour into "firsts," "seconds," and "thirds;" the bran also being ejected at the end. This is useful for obtaining fine flour for pastry; but many people prefer undressed meal, and in that case the dressing apparatus may be dispensed with. The sketch shown at *fig.* 101, gives a view of the flour-mill for private use, with the drawer open in which the flour is deposited. The mill consists of the ordinary hopper and *steel* cylinder (A B), which are exactly similar in principle to the oat-bruisers so much used in the stable of late years. By this cylinder the wheat is ground, and only requires dressing to separate it into the various qualities which are desired. This dressing is effected at the same time as the grinding, by a horizontal cylindrical sieve, extending from (D) to (E), and worked by a strap, which passes also round a pulley from the wheel above. The flour is carried into it by a bent tube, to which it is admitted at (C), and the sieve has a slight inclination towards the end (E), so that as it revolves, the flour in it is gradually carried on to that extremity. Being covered with a sifting material with different degrees of coarseness, gradually increasing in this respect from (D) to (E), it follows that as the flour travels on towards (E) it deposits its fine flour, or "firsts," in the division (F) of the drawer below; the "seconds" being thrown into the next compartment (G), the "thirds" into (H), and the bran into (I). If, however, only one kind of flour, with the bran removed, is desired, two of the divisions are taken out, namely, those on each side of the compartment (G), and then the flour, though deposited in different degrees of fineness, has only to be mixed up together to constitute what is wished; or, if "firsts" and "seconds" only are desired, then the division between (G) and (F) is removed with a similar result. The labour of working this mill is, however, very considerable; and the flour will cost in grinding about the same as the price charged by most millers, namely, 6d. per bushel; or of course less, if the labour is not valued at the ordinary rate. But by

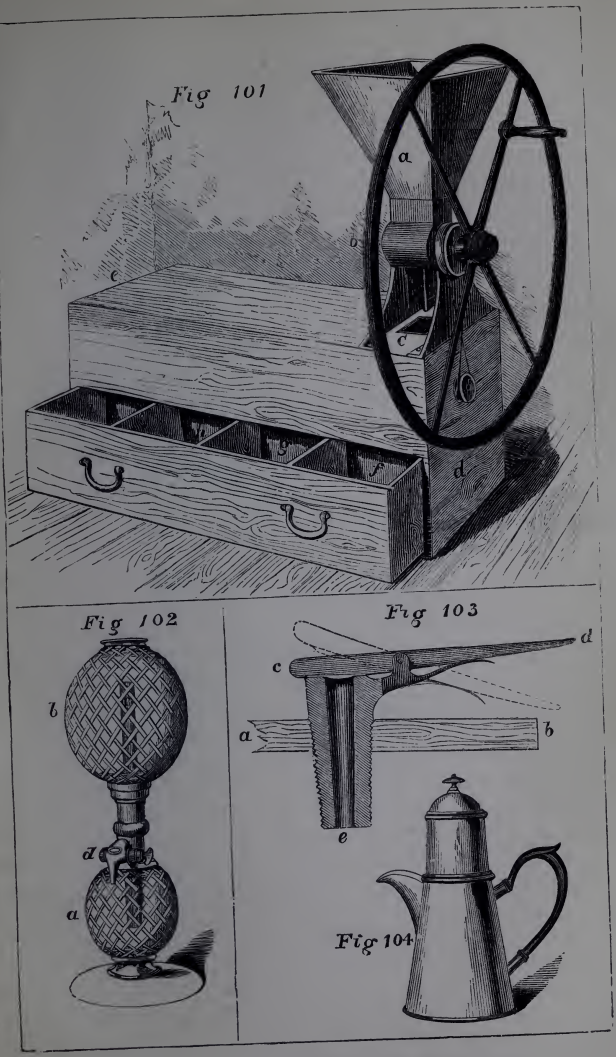
its use there is a certainty of having a genuine article, which cannot be the case with wheat sent to the public mill, in which, however good the wheat sent in may be, the flour returned does not generally correspond, as it is not possible to keep small quantities separate, and therefore the sack of wheat goes into the general stock, and a proportionate return is made also from the day's grinding without any reference to the individual grain sent.

PRICE OF FLOUR-MILL WITH CASE-HARDENED CYLINDER.

		£	s.	d.
1.	Without dressing apparatus, to grind one peck per hour ...	3	0	0
2.	Ditto ditto, to grind one and a half peck per hour	4	10	0
3.	Ditto ditto, one bushel	5	10	0
4.	Ditto ditto, two bushels	7	10	0
5.	With dressing apparatus, to grind half a bushel per hour ...	8	0	0
6.	Ditto ditto, to grind one bushel	10	0	0
7.	A sieve to be used separately for removing the bran	0	7	6

A new mill should be cleaned by grinding a handful of corn to get rid of the dust, steel-filings, &c.

598. THE OVEN comes next in importance, and it may be either a brick oven or an iron one attached to, and heated by, the ordinary grate; or the suspended oven lately introduced by Mr. Ball, of New Oxford-street. The construction of the brick oven is too well known to need description; or, if unknown to the reader, it is part of the regular work of every village mason or bricklayer. The iron oven at the side of the grate, if of a large size, will bake a couple of loaves on each shelf; but they are seldom equally baked on both sides, and the result is not to be compared with the brick oven. Iron ovens are also made to be heated with a separate fire and flue, but even they are not good bakers of bread. Gas ovens do not answer well for bread, as they dry it too much by the draught of air necessary for the proper combustion of the gas. Ball's oven is merely a circular iron oven suspended to a bottle-jack in front of the fire with a reflector above and below. This oven bakes a single loaf beautifully, but it requires a considerable addition to the kitchen fire, even in the winter; and, if used in the summer, the expenditure of coals, *per loaf*, is very much greater than for the side oven or that made of brick. In heating this last, fagots of brushwood are the best fuel; next to which is quick-burning coal, leaving but little ash. The object is to have a lively and somewhat strong fire, so that the oven may be heated in from fifteen to twenty-five minutes, and retain its heat sufficiently long. If intended for a succession of bakings, a brick oven may be heated a



FLOUR-MILL, GAZOGENE, VENT-PEG, AND COFFEE-FILTER.

little longer than this; and then after taking out the fuel and sweeping the floor, shut the door so as to diffuse the heat throughout the bricks, by which means it lasts hot a much longer time. The experienced baker knows in a moment when his oven is heated by the effect on his face, and this can scarcely be described. It should be sufficiently heated about twenty minutes after the dough is ready to be made up, when the fire should be taken out, and the floor of the oven wiped out quite clean. While this is going on, the loaves are being made up, and they should be ready to put into the oven as soon as possible afterwards. Quartern loaves take, on the average, about two hours to bake; but the door of the oven should be removed before that time to examine them. Half-quarterns take nearly an hour and a half, and smaller loaves or cakes still less.

599. The Kneading-trough, or Pan, the Board, and other utensils, cost very little. An earthen pan, glazed inside, is all that the cottager really requires, provided it is large enough to hold the quantity of bread which is to be baked. The regular kneading-trough is an oblong square wooden box, with a lid to it; but the pan answers every purpose, and is also less liable to absorb moisture, which afterwards becomes sour.

Sect. 2.—Home-made Bread.

600. At pages 90 to 97, baker's bread has been described, and the method of making it differs little from that adopted in home-baking. The first thing to be done is to select the flour, and decide upon the kind which is to be used. There is not the slightest doubt in my mind that undressed wheat-flour is most suited to the stomach of man, and will support him better under all circumstances than any other kind. It is also more nourishing; and for children, particularly, is better suited, because it contains in the bran a larger proportion of the bone-making elements. These facts are now so clearly established upon scientific principles, that they are generally acknowledged. But when the stomach has long been accustomed to fine bread it will not bear the irritation of the bran, and in such a case finer flour must be chosen; that called "firsts" need never be fixed upon, as the "seconds" will agree with any stomach. Where economy is much studied, Indian-meal may be mixed with wheat-flour with advantage, as it is very nearly as nourishing, and costs very much less money. Rice and potatoes mixed with flour make an equal *bulk* and *weight* of bread at a less price, but though they satisfy the appetite as well as

wheat-flour, they do not supply the wants of the system; and the labouring man who expects to be able to work upon bread made with them as well as upon good wheaten bread will be greatly disappointed. Nevertheless, for a family of children, a shilling's worth of bread made in this way will go farther than an equal value of wheaten bread; though if these same children were fed upon equal *weights* of the two for equal consecutive periods, the difference would be very manifestly in favour of the pure wheat. Boiled rice and potatoes contain plenty of nourishment of one kind, namely, starch; but they have scarcely a vestige of those nitrogenised principles which go to build up the muscles and bones. But for those families where meat, or bacon, or milk, or any kind of animal food, is used in any quantity, potatoes and rice may be mixed with wheat-flour to a certain extent without injury, inasmuch as these animal-foods contain nitrogen enough for the demands of the system. The housekeeper will therefore remember—1st, that for hard work there is no bread like wheaten bread; 2ndly, that children do better with a liberal supply of bread made of wheat and rice, or wheat and potatoes, than with a scanty quantity of wheaten bread; 3rdly, that when plenty of animal food is to be had, these last-mentioned breads, or that made of the seconds wheat-flour and Indian-meal, is quite nourishing enough for all ordinary purposes, and considerably cheaper in price.

Bread-making.

601. The method of making wheaten-bread, in quantities adapted to ordinary families, is as follows:—Take two pecks of flour, put it in a deep pan or trough, and make a deep hole in the middle, then take half a pint of good fresh yeast, or either of those given at par. 191 or 594, mix it well up in half a pint of warm water, and pour it into the hole made in the flour. Next, take a spoon and work it round the outside of this central pool of water, so as to bring into it by degrees enough of the flour to make a thin paste or batter, which should be well mixed up without breaking down more than enough of the surrounding flour. Lastly, take a handful of flour and scatter over the top of this, upon which a thick cloth is to be laid, the flour preventing its sticking to the paste. The whole must now be put by to rise, either near the fire if in cold weather, or at a distance if in the summer. When the batter has risen enough to crack the layer of flour scattered over it, the "sponge" is sufficiently risen, and it may be formed into *dough*, thus:—Begin round the central hole as before, but using the

hand instead of a spoon, and working the flour into the batter, at the same time adding more lukewarm water, until it is sufficiently moist, or, for some kinds of bread, milk instead. A quarter of a pound of salt is to be incorporated, either in the kneading or by dissolving in the water. When all is mixed together, the dough still requires to be well kneaded, in order to mix the fermented batter with the rest of the flour, and to get rid of the lumps of the latter, which would otherwise remain unmixed with water. The dough must, therefore, be well worked with the fists and heels of the hands, rolling it over and pressing it out, then folding it up and pressing it out again, until it is completely mixed and formed into a stiff yet tough dough. The bakers often use their naked feet for this operation, and there is no reason why feet should be more uncleanly than hands; but it is not desirable to imitate this operation in our own kitchens. When the dough is thus made up, it is rolled into a lump, and put into the trough again, well floured on the surface to keep it from sticking; and there it should remain for about twenty minutes, when it may be divided into portions suited to the size of the intended loaves.

Cost of Bread.

602. By this method of making bread the cost is as follows:—

Fine Wheaten Bread.

	s.	d.
28 lb. of flour (firsts)	6	3½
Half a pint of yeast	0	3
Baking	0	6
	7	0½

Producing nine loaves of 4 lb. each, at 9¼d. per loaf.

Seconds Wheaten Bread.

	s.	d.
28 lb. of flour (seconds)	5	8½
Half a pint of yeast	0	3
Baking	0	6
	6	5½

Producing nine loaves of 4 lb. each, at 8½d. per loaf, instead of 9d., the current rate at the baker's, with flour at this price.

If American Flour is used, a greater weight of bread will be produced, and the flour also costs less (see par. 164).

Brown Bread.

603. If wheat is ground at home, and the flour made into bread undressed, in the same way as is described in the above directions, the

quartern loaf will cost as follows, supposing wheat to be at a corresponding price, that is, at 8s. 6d. per bushel:—

	s.	d.
Half a bushel thus ground will produce 30 lb. of flour, for	4	3
Grinding	0	3
Yeast	0	3
Baking	0	6
	5	3

This will make nine and a half loaves of 4 lb. each, being at a cost of 6½d. per loaf.

To Make Mixed Bread of Wheat and Rice.

604. Take one pound and a half of whole rice (Carolina is best, but good Patna will do), boil it gently over a slow fire in three quarts of water for five hours, till it can be beaten into a smooth paste; mix this while warm with fourteen pounds of flour, adding at the same time the usual quantity of yeast (half a pint) and of salt (a quarter of a pound); let the dough stand by the fire, if cold weather, to rise, and it will produce when baked from twenty-eight to thirty pounds of good and sweet white bread—say, seven loaves of 4 lb. each.

Cost of Rice and Wheaten Bread.

	s.	d.
1½ lb. of rice	0	4½
14 lb. of flour (seconds)	2	10½
Yeast	0	3
Baking	0	6
	3	11¾

This produces seven loaves of 4 lb. each, at a cost of about 6¾d. per loaf.

Bread composed of Wheat and Indian-meal.

605. This is made as follows:—Take of Indian-meal seven pounds, pour upon it four quarts of boiling water, stirring it all the time; let it remain till lukewarm, then mix it with fourteen pounds of fine wheat-flour, to which a quarter of a pound of salt has already been added; make a depression in the surface of this mixture, and pour into it two pints of yeast, which must be thickened to the consistence of batter with some of the flour; let it stand all night, when the whole should be well kneaded, and allowed to stand for three hours. It may now be divided into loaves, which are better baked in tins, letting the dough remain in them half an hour before putting them in the oven. This will make twenty-eight pounds of good, wholesome, but rather sweet bread.

Cost of Bread composed of Indian-meal and Wheat.

	s.	d.
14 lb. of good flour (seconds)	2	10½
7 lb. of Indian-meal...	0	10
Yeast	0	3
Baking	0	6
	4	5½

Producing seven loaves of 4 lb. each, at a cost of 7½d. per loaf.

Potato and Wheaten Bread.

606. Boil five pounds of good mealy potatoes till floury, then peel, mash fine, and mix them with as much cold water as will allow them to pass through a coarse sieve, the unbroken lumps being rejected to be again mashed and returned to the sieve. This is to be mixed with the yeast, and put into fourteen pounds of flour, in the same way as with rice (par. 604).

Cost of Potato Bread.

	s.	d.
5 lb. of potatoes	0	4
14 lb. of flour (seconds)	2	10½
Yeast	0	3
Baking	0	6
	3	11½

Producing 26 lb. to 27 lb. of bread—say, six and a half loaves, 4 lb. each, at 7¼d. per loaf.

Sago Bread.

607. The following is said to be a good and economical plan:—Two pounds of sago are to be boiled in three quarts of water to one quart, which is then to be mixed with a pint of yeast, and together they are to be poured into twenty-eight pounds of flour and made into bread in the usual way (par. 601). Sago is not more nourishing than rice or potatoes; nor does it produce a greater quantity of bread.

Cost of Sago Bread.

	s.	d.
1 lb. of sago	0	3
14 lb. of flour (seconds)	2	10½
½ pint of yeast	0	3
Baking	0	6
	3	10½

This quantity will produce six and a half loaves, of four lb. each, being at the rate of a trifle more than 7d. per loaf.

Unfermented Bread.

608. It has been supposed by many well-informed persons, that bread made without yeast is more wholesome, more nourishing, and more economical, than that raised by its agency in any of its forms. The plan was first advocated in the year 1816, by Dr. Thomson, Professor of Chemistry in the University of Glasgow, since which time it has gained considerable ground in the opinion of a certain portion of the public. The originator and his followers assert, that "the degree to which the fermentation of the dough is carried before it is put into the oven, likewise affects its digestibility. If the fermentation of the dough be carried far enough, there is no doubt that not only is the alimentary matter by so much diminished, but the digestibility of the bread is lessened in the same proportion. Such bread will have undergone so much more of the *acetous* fermentation, and will be by so much more likely to derange the stomach, and to be with difficulty assimilated." Here two things are taken for granted, which are not allowed by the other side, who allege—1st, that the fermentation in ordinary bread-making is *not* allowed to proceed far enough to do the above mischief; and, 2nd, that *acetous* fermentation is not developed, but, on the contrary, *alcoholic*. These facts, if proved, cut the ground from under the feet of the advocates of this method, since it is clear that they would then be without any *theoretical* case. *Practically*, I am confident from long experience, that bread made with good yeast is more *wholesome* than that made with acid and soda, and also more *economical*, or at all events as much so. It is a fallacy to assert, that unfermented bread produces a greater weight of the article desired, *if both are equally spongy*. It is quite true, that as it is often used with a texture more like hard dumplings than sponge, and containing a large amount of water, the produce of a given weight of flour will weigh more than if well made into good fermented bread. But if a sufficient quantity of acid and soda are used so as to raise the bread properly, and allow it to be baked into a wholesome condition, the weight will correspond with that given for fermented bread (paragraph 602), or sometimes will even fall rather below that amount. But in that case the bread is too salt for most tastes, and I believe too much so for most stomachs, developing thirst to a disagreeable and injurious extent, and containing in fact double the usual amount. It is commonly stated that a sack of flour will, by the soda method, produce from 105 to 108 four-pound loaves, while we know that the fermented

bread from that quantity is seldom more than 90 loaves of the same size. From actual experiment, however, I am satisfied that this is not the case with no more than one ounce each of soda and acid to fourteen pounds of flour (seconds), or an ounce and a half to undressed meal; in either case the bread being heavy. For a long time I believed in the accuracy of these assertions, and used the unfermented bread for many purposes, considering it not only wholesome but economical; but after careful and repeated examinations of the samples of bread, and testing its effects upon the stomach, I am quite satisfied of the accuracy of the conclusion at which I have arrived. The public bakers are too ready to seize upon any plan which would enable them to increase the weight of their bread, that being the only element upon which they are legally entitled to charge for it; and if the quality were as good as it is pretended, the trouble being well known to be lessened by this practice, it is clear that self-interest would teach them to adopt it. But if they were to offer such to the public as ordinary bread, they would lose their customers almost to a man. It is really only under the shadow of the names of Drs. Thomson, Robertson, and others that this plan has maintained its ground, its advocates believing that it must be economical and wholesome because they are told so by those gentlemen. Two things, however, are required to make bread wholesome—1st, materials suited to nourish the frame; and 2nd, such a mechanical arrangement of them as will admit the solvent juices of the stomach to its interior, this being the object of the spongy texture given by the rising of the dough. If, therefore, the acid and soda fail to do this, and in consequence of such failure leave the bread so full of water, and so heavy as to be unfit for digestion, although it may weigh more, it will not only afford no more nourishment to the body, but it will disagree with the stomach by giving it too much to do. There may be some utility in increasing the weight of bread by means of water, provided the bulk also is enlarged, because then the hungry stomach is filled and satisfied, if only for a time; but a pound of good, well-made, and spongy bread is always better than a pound and a quarter of heavy doughy bread, containing the same quantity of nourishment added to an extra proportion of water. But as the public like to judge for themselves, the following formula is given for making this bread:—

To Make Unfermented Bread (White). Take 12 lb. of flour, and put it into an earthen pan, where it is to be thoroughly mixed by the hand, or a sieve, with 1½ oz. of soda. Then mix 1½ oz. of hydro-

chloric acid with six pints of water, using a wooden stick for the purpose; pour the acid and water into the flour, and incorporate the one with the other as quickly as possible. The dough must be kneaded quickly, and made up at once into loaves, using tins or earthen moulds for the purpose; or, if desired, baking them in the ordinary way; but as the dough is less tough than usual, the loaves do not keep their shape well. For the same quantity of undressed flour, 2 oz. of soda and acid will not be too much. The following, according to my experience, is the result in WEIGHT and COST:—

COST OF UNFERMENTED BREAD.

	s.	d.
12 lb. of flour (seconds)	2	4½
1½ oz. of bicarbonate of soda	0	1½
1½ oz. of hydrochloric acid	0	1½
Baking	0	5
	3	0½

This produces 16 lb. of bread, or four loaves of 4 lb. each, at 9d. per loaf.

Independently of the above objections founded on practical experiments, it is believed that the hydrochloric acid in common use contains some appreciable proportion of arsenic, obtained from the metallic salts which have been used in its decomposition and re-formation. Now I do not myself believe in the injurious effects of arsenic in these infinitesimal doses, but still they are considered injurious by many people, and therefore it is right that they should be aware of the existence of the drug in this acid.

SUMMARY ON THE ARTICLE BREAD.

609. On a careful examination, therefore, of the foregoing data, the economist of money and health will, I believe, come to the conclusion, that in order to get *good* bread at the lowest cost he had better either grind his own wheat, or purchase wholesome flour and make it into bread at home. In purchasing his flour he should, if possible, select the American flour *as imported;* and as it will keep for months or years with advantage, he may always do this through some flour merchant or broker in London, Liverpool, or Bristol. If the meal is somewhat clodded it is easily broken up by the hand, unless it is damaged by sea-water, which, if sold as of the best quality, it ought not to be. Brown bread should always be made of flour ground at home, as the millers seldom keep the wheat which is sent them to grind separate from other kinds; and if the best is bought for the purpose, the chances

are that what is sent home as its produce in brown meal, is composed partly of it, but in great measure of other samples. This brown bread, made with good brewer's yeast, or German yeast, or even with the patent yeast, will go farther, and cost less than any other wheaten bread; but if, as I before remarked, children are to be fed, rice, Indian-meal, or potatoes, may be mixed with "seconds" flour to advantage in all respects.

RELATIVE COST OF HOME-MADE BREADS, per 4 lb. loaf.

	s.	d.
Pure wheaten bread (first flour)	0	9¼
Pure wheaten bread (seconds)	0	8½
Brown bread (undressed flour)	0	6½
Rice and wheaten bread, mixed	0	6¾
Indian-meal and wheat-flour	0	7½
Potatoes and wheat-flour	0	7¼
Sago bread	0	7
Unfermented bread (seconds)	0	9

This is calculated at—wheat-flour (firsts), 63s.; (seconds), 57s. per sack. Wheat at 8s. 6d. per bushel, rice and sago at 3d. per lb., Indian-meal at 35s. per sack, and potatoes at ¾d. per lb.

To Make Stale Bread eat like New.

610. When bread has been kept so long as to be dry and unpalatable, it is only necessary to steep it in water for two or three minutes, and then take it out and let it stand for an hour for the water to permeate the whole loaf equally. After this, put it on a brisk, but not *very* hot, oven for about a quarter of an hour, and it will come out with all the sponginess, crispness, and flavour of "new bread," and may be kept accordingly.

Sect. 3.—Fancy Bread, Rolls, Muffins, and Crumpets.

611. These very delicious articles of diet are intended chiefly for the breakfast table, where they are prized highly by all those who indulge in luxuries at this meal. French bread, I believe, to be very wholesome to all those who are not troubled with acidity; but when that is the case, it should be avoided, and the ordinary English bread, toasted, should be substituted for it. Rolls, crumpets, muffins, and buttered toast are in the same category; but dry toast, alluded to above, is one of the most wholesome articles for the weak stomach which can be put before the invalid. The following receipts for making these several breakfast delicacies will be found useful as well as economical, though certainly less so than the common "staff of life."

Dry Toast.

612. Cut very thin slices of bread from a loaf not less than two days baked; put either one or two at a time on the toasting-fork, taking care not to hold them too near the fire; they should be just warmed on each side, then turned, and when sufficiently done on one side they should be turned again. And when they are thoroughly toasted, they should be either placed upright on a plate, one against the other, or put in the toast-rack; but they should be kept near the fire until required for the table. Toast should never be made long before it is sent to table, or it becomes tough and leathery. Some people cut off the crust.

Buttered Toast.

613. The bread should be cut thicker than for dry toast, from a square loaf, taking care to toast the whole round, which should be done like the preceding receipt. When the first slice is toasted it should be buttered on one side, then cut into quarters and placed upon the plate before the fire, while the next slice is toasted, buttered, and cut, when it also must be placed upon the first piece; and so on for as many slices as are required. The crust should properly be cut off before the bread is toasted, and carefully put away, as it will make a very good bread pudding, and ought not to be wasted.

Yorkshire Girdle Cakes.

614. Yorkshire girdle cakes are made with three-quarters of a pound of flour, into which two ounces of butter and a little salt should be well rubbed. Mix these with as much good cream as will make a stiff paste, and bake on a girdle.

Crumpets.

615. To a quart of warm milk and water add a table-spoonful of good yeast and two eggs well beaten; mix with these, by degrees, as much flour as will make a thick batter, then heat a very small frying-pan, rub it with a little butter, and pour in a large spoonful of the batter, which will spread over the pan. Watch the under-side by raising it with a fork, and when brown turn it; watching that also in a similar way. When wanted for use they must be toasted, well buttered, and sent up hot.

Pikelets.

616. Beat well two eggs, one large table-spoonful of yeast, and a little salt and nutmeg; mix with them a pint of warm new milk, and beat into them, by degrees, two pounds of flour, continuing to beat it for ten minutes; after all is mixed, let the mixture remain before the fire for two hours to rise; bake in small cakes on a girdle, butter them hot, and serve up three or four on a plate.

Muffins.

617. Mix two pounds of flour with two eggs, two ounces of butter melted in a pint of milk, and four or five spoonfuls of yeast; beat it thoroughly, and set it to rise two or three hours. Bake on a hot hearth in flat cakes. When done on one side turn them.

Bread Muffins.

618. Take four thick slices of *baker's bread*, and cut off all the crust. Lay them in a pan, and pour boiling water over them; but barely enough to soak them well. Cover the bread, and after it has stood an hour, drain off the water, and stir the soaked bread till it is a smooth mass; then mix in two table-spoonfuls of sifted flour, and half a pint of milk. Having beaten two eggs very light, stir them gradually into the mixture. Grease some muffin-rings; set them on a hot girdle, and pour into each a portion of the mixture. Bake them brown; send them to table hot; pull them with the fingers, and spread on butter. They will be found an excellent sort of muffin; very light and nice. (An American receipt.)

Breakfast Cakes.

619. Take nearly a pint of *warm* new milk, with half an ounce of butter melted in it, two eggs, two spoonfuls of light yeast, and a little salt; mix first with two pounds of flour the milk and butter, then the eggs (well beaten), yeast, and salt; cover it up, and set it before the fire for an hour to rise; then roll it into round cakes, about an inch in thickness. Put the cakes on tins before the fire to rise for half an hour. A few well-dried currants added to the above will make light buns, which may be toasted.

Rolls.

620. Take nine ounces of flour and one ounce and a half of butter,

and rub them together; then take four tea-spoonfuls of yeast, half a cup of milk, the yolk of one egg beaten a little, and mix them all together; pour them on the flour and butter, working the whole very little with the hand. This quantity makes four or five rolls. Make them up, put them to rise before the fire, and when risen bake them in a quick oven. With a good fire they may be made and baked in little more than a quarter of an hour. The quicker they are mixed and baked the better.

To Make Excellent Rolls.

621. Warm one ounce of butter in half a pint of milk; add to it one spoonful and a half of yeast and a little salt; then put two pounds of flour into a pan, and mix with it the above ingredients; let it remain for an hour to rise, knead it well, and bake in a quick oven.

American Potato Rolls.

622. Take fine large potatoes, boil, peel, aud mash them well. Then rub the mashed potatoes through a sieve. To each potato allow a pint of sifted flower; a table-spoonful of strong fresh yeast; a gill of milk-warm water; a salt-spoon of salt; the yolk of an egg; and a bit of fresh butter about the size of a large hickory-nut. Mix together in a large broad pan the flour, the mashed potatoes, and the salt. Make a hole in the centre of the mixture, and pour into it the yeast mixed with the warm water. Sprinkle a little flour over the top, and mix in a little from round the sides of the hole. Cover it with a clean towel, and over that a flannel, and set it near the fire to rise. When the dough is quite light, and cracked all over the surface, knead in the butter and also the yolks of eggs, having previously beaten them well, and add a small tea-spoonful of soda dissolved in a little warm water. Then divide the dough into equal parts, and make it into long-shaped rolls, and lay them in a tin or iron pan sprinkled with flour. Cover them, and again set them to rise in a warm place. When perfectly light (which should be in about an hour), set the pan in the oven, and bake the rolls brown. They are best when quite fresh. Pull them open with the fingers, and eat them with butter.

French Bread.

623. With a quarter of a peck of fine flour mix the yolks of three, and whites of two, eggs beaten and strained, a little salt, half a pint of good yeast, not bitter, and as much milk, a little warmed, as will

work it into a thin light dough; stir it about, but do not knead. Have ready three quart wooden or iron dishes or tins; divide the dough among them. Set to rise, then turn them out into the oven, which must be quick. Rasp when done.

To Make French Rolls.

624. Two pounds of best flour, three eggs, six spoonfuls of yeast, one pint of milk, and a little salt; cover it up warm, and set to rise for half an hour; then make the rolls, and put them into a quick oven, and let them stop in for half an hour. If not light enough, more yeast may be added, if you can do so without making them bitter.

Sally Lunn Rolls.

625. Two pounds of fine flour, two small spoonfuls of yeast, with a little warm water; this must be put to rise for half an hour. Put two ounces of butter and the yolk of an egg in as much new milk as will make it a proper stiffness; mix all well up, and put it into cups; when risen, bake them in rather a quick oven.

Delicious Breakfast Rolls.

626. Rub into one pound of flour one ounce of butter, and one teaspoonful of sugar, with a little salt; mix into a *light* paste with new milk, lukewarm, and containing one table-spoonful of yeast; let the paste stand three-quarters of an hour (or a little longer sometimes) till it rises; then make into small rolls, either egged over or not, and bake. An egg to each pound of flour is an improvement. Some people prefer them without the sugar, split and buttered.

Sect. 4.—Cakes.

627. The essential difference between these and the preceding articles is not very manifest, inasmuch as some of them are sweetened and made up with eggs and milk, in addition. The only distinguishing feature is the use to which they are severally applied, cakes being intended to be eaten by themselves, while crumpets, muffins, and the corresponding articles are used with butter or some flavouring material.

French Icing for Cakes.

628. Dissolve some fine white gum-arabic (finely powdered) in rose-water. The proportion should be, as much of the gum-arabic powder

as will lie on a sixpenny-piece to a tea-spoonful of rose-water. Beat some white of egg to a stiff froth that will stand alone. Stir in, gradually, sufficient double-refined powdered loaf-sugar to make it very thick, (a good proportion is four ounces of sugar to the white of one egg,) add to this quantity a tea-spoonful of the rose-water with the gum-arabic dissolved in it, and beat the whole very well. Instead of rose-water you may dissolve the gum in fresh lemon-juice. Previous to icing the cake, dredge it with flour, and in a few minutes wipe it off with a clean towel. This, by removing the greasiness of the outside, will make the icing stick on the better. Heap the icing first on the middle of the top of the cake; then with a broad-bladed knife spread it evenly all over the surface. Dip the knife frequently in a bowl of cold water as you proceed, and smooth the icing well. If not thick enough, wait till it dries, and then add a second coat, and bake.

Almond Icing.

629. Take half a pound of shelled sweet almonds, and three ounces of shelled bitter almonds. Put them, a few at a time, into a large bowl, and pour on boiling water to loosen the skins. As you peel them, throw the almonds into a bowl of cold water. When they are all blanched, pound them one at a time in a marble mortar, adding frequently a few drops of rose-water to prevent their oiling. They must be pounded to a smooth paste without the smallest particles of lumps. As you pound the almonds, remove this paste with a tea-spoon to a deep plate. Beat the whites of four eggs to a stiff froth. Then, gradually beat in a pound of the best double-refined sugar. Lastly, add, by degrees, the almond paste, a little at a time, and beat the whole thoroughly. If too thick, reduce it with lemon-juice.

Currant Cake.

630. Take two pounds of flour, half a pound of butter rubbed in the flour, half a pound of moist sugar, a few carraway seeds, three or four table-spoonfuls of yeast, and a pint of milk made a little warm. Mix all together, and let it stand an hour or two at the fire to rise; then beat it up with three eggs and half a pound of currants. Put it in a tin, and bake two hours in a moderate oven.

A Light Seed Cake without Butter.

631. The yolks of six and whites of three eggs should be beaten well for half an hour; then mix with them four ounces of powdered

loaf sugar, eight ounces of dried flour, and a few carraway seeds. Stir the whole well together, and put it in a tin or basin lined with writing-paper buttered. Half an hour will bake it, if the oven be quick.

A Seed Pound Cake.

632. One pound of butter melted, one pound of sifted sugar, one pound of flour, eight eggs, two ounces of carraway seeds, and half a tea-spoonful of soda put in just before going to the oven. The whites and yolks of eggs to be beaten separately.

A Plum Pound Cake.

633. Make a cake as above (without the carraway seeds), and when you have beaten it, mix in lightly half a pound of currants, two ounces of citron, and two ounces of candied lemon-peel, cut small.

A Good Plum Cake.

634. Take three quarters of a pound of raisins, stoned, picked, and slightly chopped; the same weight of currants washed and dried before the fire; and also of butter; four eggs; half a pound of sugar; a little nutmeg, cinnamon, and allspice; some yeast; three pounds of flour dried before the fire; some lemon-peel shred fine; mix well together, and add, if you like, a little brandy, and candied orange and lemon.

Plain Soda Cake.

635. Take one pound of flour, half a pound of moist sugar, and rub in half a pound of butter, lard, or dripping; then take four eggs well beaten, a tea-cupful of milk, lukewarm, with half a tea-spoonful of soda dissolved in it. Mix all together, and put it into the oven immediately; two hours will bake it in a quick oven.

Plain Lunch Cake (Soda).

636. One small tea-spoonful of soda, half a pound of flour, half a pound of currants, two ounces of candied lemon, half a pound of sugar, four ounces of butter, and three eggs. Mix together and bake about half an hour.

Soda Cake with Currants.

637. Six ounces of butter rubbed into one pound of flour, half a pound of sugar, half a pound of currants, three quarters of an ounce of carraway seeds, a tea-spoonful of soda dissolved in a little boiling

water, and mixed with new milk to make a pint; if wanted richer, add three eggs. Bake one hour and a half, putting it into the oven as soon as possible after mixing.

A Family Cake Made from Dough.

638. A Family Cake made from dough with half a pound of raisins, three quarters of a pound of currants, one ounce of candied peel, half a pound of dripping, and half a pound of moist sugar, mixed with a quarter of a peck of dough, already kneaded, and set to rise for half an hour. The dripping, if mellow (not melted), will rub into the dough with the other ingredients. Let it stand to rise for another quarter of an hour before being baked. Use a table-spoonful of yeast (and if you like, a little carbonate of soda), when made with flour.

An Excellent Common Cake.

639. Take five ounces of dripping or lard, five ounces of currants, or half a pound of raisins, eight ounces of sugar, and one egg, to two and a half pounds of flour. Either a table-spoonful of yeast or a tea-spoonful of carbonate of soda must be added.

Cakes for Village School Fetes.

640. Take sixteen pounds of flour, three pounds of raisins, two pounds of currants, three pounds of sugar, a proper proportion of lard or dripping. Make into seven cakes.

Another.—Take fourteen pounds of flour, fourteen ounces of dripping, two pounds three quarters of raw sugar, one and a half pound of raisins, one and a half pound of currants. Moisten these with milk, and lighten with yeast, carbonate of soda, or baking powder.

To Make Three Sponge Cakes.

641. In making Sponge Cakes, the *great art* is to keep the materials for making, dishes, moulds, and sand, perfectly *hot.* Take three quarters of a pound of sugar in small lumps, and rub some of the lumps on the rind of a large lemon till *all* the essence is extracted, add half a teacupful of cold water to the sugar (leaving a little of the water to rinse out the basin afterwards), and put it into the oven to melt and warm. Break into a basin seven eggs, leaving out two of the whites,

beat them slightly to mix them, and add them to the sugar. Beat this from ten to twenty minutes, till it is the consistence of a thick cream, then sprinkle half a pound of well-dried and hot flour lightly into it with the hand, taking care there are no lumps, and stirring it gently *one* way. Fix the hot buttered moulds into a pan filled with hot sand, and pour the batter into them. Put them into a quick oven *instantly*, and bake from half to three quarters of an hour. You can judge when they are done by the appearance of the middle of the cake. It is better not to open the oven much while they are baking, and the cakes should be taken out of the moulds to cool. Some people line the moulds with buttered paper.

A Cheap and Quickly Made Sponge Cake.

642. Sift one pound of fine sugar, then whisk eight eggs and beat both together twenty minutes; flavour with grated lemon and cinnamon. Stir in very smoothly three quarters of a pound of flour; before baking, strew over it sifted sugar.

Excellent Sponge Cake.

643. Take half a pound of sugar, five ounces of flour, six yolks and four whites of eggs; *well* beat the yolks and whites separately, then add to the latter the sugar, yolks, and flour, with the grated peel and juice of half a lemon. Bake in a quick oven.

Pound Cake.

644. Beat half a pound of butter to a cream, add three eggs well beaten, and half a pound of pounded sugar. When the above ingredients are well beaten together, mix in by degrees one pound of flour. Any spice or sweetmeats may be added at discretion.

Bolton Abbey Cake.

645. Beat well half a pound of butter to get out the water, and work it to a cream; then beat well the yolks and whites of four eggs; weigh separately half a pound each of flour and of sifted lump sugar. Add these ingredients, a spoonful at a time, to the butter, and work them *well* together till all are mixed; bake in a mould. A few carraway seeds can be added, if liked.

Jumbles or Ratafia Cakes.

646. Half a pound of flour, half a pound of loaf sugar, six ounces of butter to be rubbed into the flour; one ounce, each, of sweet almonds and of bitter almonds pounded. This quantity wetted with one egg well beaten, dropped in small lumps on a tin, will bake in a few minutes in a quick oven. A little pounded sugar should be strewn over the surface before they are put in the oven. They must be slightly browned.

Short Bread.

647. Half a pound of butter, one pound of flour, six ounces of moist sugar. Beat the butter to a cream, mix the sugar and flour with it, and knead it out into cakes. Prick it with a fork, and sprinkle comfits and orange peel over.

Lemon Cake.

648. Take half a pound of powdered loaf sugar, half a pound of flour well dried, the grated rind of one lemon, two ounces of butter, two well beaten eggs; mix all together and roll out thin, lay it on a tin, and, when baked, cut it in small squares or lozenge shapes.

Sally Cake.

649. Beat ten eggs, leaving out half the whites, with the rind of two small lemons, or one large lemon, grated fine; add one pound of lump sugar rolled very fine. Then mix in half a pound of flour; just before it goes to the oven, stir in the juice of the lemons. Butter the tin well, and bake two hours. Seville oranges can be used instead of lemons.

Rice Cake.

650. Have ready three ounces of flour, three ounces of ground rice, six ounces of sugar finely sifted, five eggs (whites of two only), and rind of a lemon, grated. Beat the eggs well together, and then beat in the sugar with them, and the flour, &c. Bake from three quarters of an hour to an hour and a quarter, according to the heat of the oven.

Rice Pound Cake.

651. One pound of rice flour, one pound of butter, and one pound of sifted lump sugar, are to be beaten well together, with the yolks of ten eggs, and put into a mould and baked.

Small Rice Cakes.

652. To one pound of lump sugar, sifted, add half a pound of flour, half a pound of rice flour, the yolks of eight and the whites of six eggs, and six ounces of butter; beat them well together, and bake in petty-pans, in a quick oven. Half the quantity will make about fourteen cakes.

Indiana Batter Cakes (American).

653. Sift into a pan three full pints of yellow Indian-corn meal; and add a large table-spoonful of fresh lard, or of nice roast-beef dripping well cleared from fat. Add a large tea-spoonful of bicarbonate of soda, dissolved in a little warm water. Next make the whole into a soft dough, with a pint of cold water. Afterwards thin it to the consistence of a moderate batter, by adding, gradually, not quite a pint and a half of warm water. When it is all mixed, continue to stir it well for about half an hour. Have ready a girdle heated over the fire, and bake the batter on it, in cakes, turning them when brown; send them to table hot, and eat them with butter or molasses. These cakes are very light and good, and convenient to make, as they require neither eggs, milk, nor yeast. They may either be baked as soon as mixed, or they may stand for an hour or more.

Kentucky Batter Cakes.

654. Sift a quart of yellow Indian meal into a large pan; mix with it two large table-spoonfuls of wheat-flour, and a salt-spoonful of salt. Warm a pint and a half of rich milk in a small saucepan, but do not let it come to a boil. When it begins to simmer, take it off the fire, and put into it two pieces of fresh butter, each about the size of a hen's egg. Stir the butter into the warm milk till it melts, and is well mixed. Then stir in the meal, gradually, and set the mixture to cool. Beat four eggs very light, and add them, by degrees, to the mixture, stirring the whole very hard. If you find it too thin, add a little more corn-meal. Have ready a girdle heated over the fire, and bake the batter on it, in the manner of Indiana batter cakes. Send them to table hot, and eat them with butter, to which may be added molasses or honey.

Rye Batter Cakes (American).

655. Beat two eggs very light. Mix them, gradually, with a quart

of lukewarm milk, and sufficient rye-meal to make a batter as thick as for batter cakes (par. 653). Then stir in a large table-spoonful of the best brewer's yeast; or twice that quantity if the yeast is home-made. Cover it, and set it to rise in a warm place. If too thin, add more rye-meal. When quite light, and covered on the surface with bubbles, bake it on a girdle, in the manner described at paragraph 653. Butter them, and eat them warm, at breakfast or tea.

Fine Honey Cakes (American).

656. Mix a quart of strained honey with half a pound of powdered white sugar, and half a pound of fresh butter, and the juice of two oranges or lemons. Warm these ingredients slightly, just enough to soften the butter. Then stir the mixture very hard, adding a grated nutmeg. Mix in, gradually, two pounds (or less) of sifted flour. Make it into a dough, just stiff enough to roll out easily. Beat it well all over with a rolling-pin. Then roll it out into a large sheet, half an inch thick; cut it into round cakes with the top of a tumbler (dipped frequently in flour), lay them in shallow tin pans, slightly buttered, and bake them well.

Molasses Cakes (American).

657. Cut up a quarter of a pound of fresh butter into a pint of West India molasses. Warm it just sufficiently to soften the butter, and make it mix easily. Stir it well into the molasses, and add a table-spoonful of powdered cinnamon. Beat three eggs very light, and stir them gradually into the mixture, in turn with barely enough of sifted flour (not more than a pint and a half) to make it about as thick as pound-cake batter. Add, at the last, a small or level tea-spoonful of pearlash, or a full one of soda, dissolved in a very little warm water. Butter some small tin cake-pans, or patty-pans; put in the mixture, and set them immediately in the oven, which must not be too hot, as all cakes made with molasses are peculiarly liable to scorch on the outside.

To Make Small Cakes.

658. One pound of flour, half a pound of brown sugar, half a pound of butter, a little nutmeg, and as many currants as you please; rub the butter and sugar well into the flour, and mix it together with two eggs. Put it in small cakes and bake in tins.

Another Receipt.—Rub into one pound of flour a quarter of a pound

of butter, with half a pound of pounded sugar; mix these up with milk, roll thin, and cut in shapes.

Little Rough Cakes.

659. Mix well together one pound two ounces of flour dried before the fire, half a pound of loaf sugar dried and sifted, a few currants, and half a pound of butter; take the yolks of five eggs and make all into a paste, roll into little cakes, and bake them on tins or paper. The rind of a lemon grated in will be found pleasant.

Another Receipt.—Mix well together one pound of flour, half a pound of butter, one pound of sugar, two eggs, the rind of one lemon and the juice of two; then put small bits with a knife on a tin, and bake in a slow oven.

Queen's Drop Cakes.

660. Mix together one pound of flour, half a pound of currants, half a pound of sugar, four eggs, half a pound of butter, six drops of essence of lemon, and half a tea-spoonful of carbonate of ammonia; then bake without loss of time.

Ivanhoe Cakes.

661. Take one pound of flour, rub into it six ounces of butter, one pound of loaf sugar pounded, one ounce of sweet almonds, one ounce of bitter almonds pounded, and a little grated lemon peel; mix all together with three eggs, put it upon tins in pieces about the size of a walnut, and bake in rather a slow oven.

Ginger Cakes.

662. Take three-quarters of an ounce of powdered ginger, one pound of fine flour well dried, three-quarters of a pound of the best Lisbon sugar, half a pound of butter; mix with water to a stiff paste, roll it out, cut out the cakes, and bake on a tin in a slow oven.

Genuine Shrewsbury Cakes.

663. These are made with half a pound of flour, a quarter of a pound of sugar, six ounces of butter, one egg, and a little powdered mace and cinnamon. The butter and sugar are rubbed into the flour. The paste is rolled out to a moderate thickness, cut into round cakes and baked in a quick oven.

Rock Cakes.

664. Take one pound and a half of flour, and one pound of butter, rub them together, and add half a pound of loaf sugar, a quarter of a pound of currants, two ounces of candied peel cut small, and two spoonfuls of brandy; mix all well together; make into rough cakes and bake.

Gingerbread.

665. Take one pound and a half of flour and rub into it three-quarters of a pound of butter, half a pound of sugar, three-quarters of an ounce of ground ginger; mix all together and make into a paste, with one pound and a quarter of treacle, and the rind of a lemon cut small. Spread it on the tins, and bake in a slow oven.

Another Receipt (*Richer*).—Melt in one pound of treacle half a pound of butter before the fire, stirring it occasionally; when nearly cold, add two ounces of candied peel, ginger to your taste (one ounce will make it hot), add about one pound of flour to make it into a light paste, then put one pound of sugar, which must not be added till after the flour, as it will then melt in the oven, and spread over the tops of the gingerbread; roll it immediately, and put it upon tins in a quick oven; when done it will be a dark brown.

Another Gingerbread.—Take two pounds of flour, and one pound of butter, one pound of powdered sugar, one ounce of ground ginger; melt the sugar and butter together before mixing them with the rest, and then make into a paste with a pound and a quarter of treacle. Spread it on the tins, and bake it in a slow oven. Add the rind of a lemon cut small.

Yorkshire Ginger-bread Nuts.

666. Mix half a pound of flour, half a pound of butter, half a pound of brown sugar, with three ounces of ginger, and as much treacle as will make it into a stiff paste. Roll it out, and then bake it for *about twenty minutes* in a slow oven.

Honeycomb Gingerbread.

667. Mix one pound of butter, one pound of coarse sugar, half a pound of candied peel cut fine, two ounces of ginger, three-and-a-half pounds of treacle, into a soft paste, with about two-and-a-half pounds

of flour, roll it out into large thin cakes, and bake on tins. A little lemon juice added to the above is an improvement.

Flemington Gingerbread.

668. Stir together till quite light a quarter of a pound of fresh butter, and a quarter of a pound of brown sugar. Then mix in half a pint of treacle; sift rather less than a pint and a half of flour. Beat four eggs till very light, and stir them gradually into the mixture. Alternately with the sifted flour, add a heaped table-spoonful of ginger, and a tea-spoonful of powdered cinnamon; stir all well. Dissolve a level tea-spoonful of soda in as much warm water as will melt it. Then stir it in at the last. Carraway seeds may be added. Put the mixture into a buttered tin pan, and set it *immediately* in a rather brisk oven, and bake it well. This may be ascertained by passing a knife or skewer through the cake, and coming out quite clean. It requires long baking.

To Make a Rich Spiced Gingerbread.

669. The quantities of butter, sugar, and treacle (par. 668) may be doubled, and the paste when mixed kneaded on a board sprinkled with flour, and when it ceases entirely to be sticky, roll it into a thick sheet, and either cut it out with the top of a tumbler frequently dipped in flour, or cut it into long straight slips; twist every two slips together, rounding the ends off nicely. Lay them in buttered square pans, and bake them well. As gingerbread burns easily, take care not to have the oven too hot.

White Gingerbread.

670. Take one pound of flour, half a pound of butter, half a pound of finest moist sugar, and one ounce of ginger finely powdered. Rub all well together, and mix with one egg. Roll it out and cut it into small cakes.

Treacle Parkin, or Gingerbread Cake.

671. Mix three pounds of oatmeal *or flour*, one pound and a half of treacle, half a pound of butter, half a pound of moist sugar, two ounces of grated ginger, together into a paste, and roll it out about an inch thick. Cut it into small cakes, any shape you like, and bake them. An ounce of carraway seeds may be added if approved.

Small Scotch Oatmeal Cakes (Breakfast).

672. Put some Scotch oatmeal in a basin or bowl, take a jugful of boiling water, with half an ounce of salt butter or lard melted in it, to make the cakes crisp. Pour this boiling hot over the meal, stirring it as quickly as possible into a dough, and then turning it out upon a baking-board, upon which it is to be rolled till it is as thin as it will hold together, when it is to be stamped into the shape of small round cakes. These are to be first placed on a girdle to make them firm, and afterwards toasted before the fire, alternately on each side, till they are quite dry and crisp.

Small Flour Scones for Breakfast (Scotch).

673. Take one pint of milk, and boil it with a small piece of fresh butter; when it boils, pour it over a pound and a half of flour in a bowl, stirring it quickly round and round, and adding water till it is the thickness of paste. Knead and roll it out to a thin paste, then stamp out small round scones (*Anglicè*, cakes), and "fire" them on both sides on a girdle till they are heated through. They should be quite *white*, and served hot one above another, in a napkin, for breakfast.

Bath Buns.

674. Take two pounds of flour, well dried, rub in half a pound of butter, four eggs, and four spoonfuls of yeast; add as much new milk as will make it into a paste. Mix the ingredients till the mass appears light; put it by the fire to rise, and then add half a pound of powdered sugar and half an ounce of carraway seeds. When the dough has well risen divide it into the proper sizes for buns, and, just before set in the oven, strew coarsely-powdered sugar over the top.

Rich Bath Buns.

675. Take a pound of butter, six eggs, leaving out two whites, a quarter of an ounce of cinnamon, one glass of white wine, half a pound of fine flour, four spoonfuls of yeast, four ounces of carraway comfits, or of currants. Mix well altogether, and form into buns on tins. One quarter of an hour in a quick oven will bake them.

To Make Rusks.

676. With one pound of fine flour mix two ounces of loaf sugar,

sifted. Beat an egg (two are better, if plentiful), and put to it two small table-spoonfuls of yeast. Melt two ounces of butter in half a pint of new milk, put it warm into the middle of the flour, and stir in as much as it will take up; then add the yeast and egg, and stir in as much more of the flour as it will moisten; cover it over with some of the remainder, and set it to rise. When risen, work it up into a paste, and cut it into narrow strips, and again into squares. Set them to rise on tins before the fire, for more than an hour, till the oven is ready; bake them ten minutes. Dry them as there is opportunity, in a bread oven, when the bread is taken out, or other equally cool oven. It does not signify if they wait a day or two first. Keep them in a tin box and in a warm place.

Tops and Bottoms.

677. The dough is made as for rusks, omitting the eggs and butter. Then, instead of dividing it into squares, make it up into little lumps, the size of walnuts, which treat in the same way, and when nearly sufficiently baked, split in half and bake again.

Bread Rusks.

678. Pare the crust off a loaf, and cut the crumb in pieces the size of rusks, and brown in the oven till crisp; or make rusks of common bread dough, and when lightly baked divide with two forks into halves, and brown in a very cool oven.

Cracknels.

679. Mix with a quart of flour half a nutmeg grated, the yolks of four eggs, beaten with four spoonfuls of rose water into a stiff paste, with cold water; then roll in a pound of butter, and make them into cracknel shapes; put them into a kettle of boiling water, and boil till they swim, then take them out, and place in cold water; when hardened, lay them out to dry, and bake on tin plates.

Isle of Wight Dough Nuts.

680. Take three pounds of flour, rub in half a pound of butter and lard in equal proportions, add one pound of moist sugar and a little allspice, together with six eggs and four table-spoonfuls of yeast in sufficient milk to make it of the consistence of bread dough. Put it to rise

four hours. To make it up, divide it in small portions, and in each put a few currants and candied peel, rolling them into balls. Have a kettle with sufficient lard to float them when boiling. Put a few in at a time, and boil till they are brown. They will take about ten minutes to boil each lot at first, but as you go on they will brown more quickly.

American Soft Crullers.

681. Sift three quarters of a pound of flour, and powder half a pound of loaf sugar. Heat a pint of water in a round-bottomed saucepan, and when quite warm, mix the flour with it gradually. Set half a pound of fresh butter over the fire in a small vessel; and when it begins to melt, stir it gradually into the flour and water. Then add by degrees the powdered sugar, and half a grated nutmeg. Take the saucepan off the fire, and beat the contents with a wooden spaddle or spatula till they are thoroughly mixed. Then beat six eggs very light, and stir them gradually into the mixture. Beat the whole very hard till it becomes a thick batter. Flour a pasteboard well, and lay out the batter upon it in rings (the best way is to pass it through a screw-funnel). Have ready, on the fire, a pot of boiling lard of the very best quality. Put in the crullers, removing them from the board by carefully taking them up one at a time, on a broad-bladed knife. Boil but a few at a time. They must be of a fine brown. Lift them out on a perforated skimmer, draining the lard from them back into the pot. Lay them on a large dish, and sift powdered white sugar over them. Soft crullers cannot be made in warm weather.

Little Short Cakes.

682. Rub into one pound of dried flour, four ounces of butter and four ounces of sifted sugar; and one egg and a spoonful or two of good milk or cream, to make it into a paste. When mixed put three or four ounces of currants and a few carraway seeds; cut the dough with the top of a glass into cakes, and bake them on tins. Instead of currants or seeds, one ounce of almonds blanched and chopped very small may be added.

Flakey Cakes to be Served at Tea, either Warm or Cold.

683. Six ounces of lard, butter, or dripping, are to be partly rubbed in and partly rolled into one pound of flour, with a quarter of a pound

of moist sugar. Roll it out as you would pastry, and cut it into cakes with the top of a dredger; bake and warm up as required.

Sect. 5.—Biscuits.

684. Biscuits are too well known to need description. Unlike bread, they are made of a solid texture; and, in the case of captains' biscuits, with nothing but milk or water, and a very small quantity of butter or lard.

Wafer Biscuits.

685. Add one ounce of butter and the white of one egg, well beaten, to one pound of flour; mix them with as much cream or good milk as will make a thick paste; work the paste up well till it is as fine as glass, then cover it over, and set it before the fire for twenty minutes; break it in pieces the size of a walnut, roll it out thin as a wafer, using as little flour as possible in doing it. Bake about three minutes in a quick oven.

Wine Biscuits.

686. Rub into a pound and a half of flour, well dried, four ounces of butter and three ounces of sifted sugar; beat well two eggs and mix with it, then a little water to make it a stiff paste; roll it out very thin, cut out the biscuits, and bake in a quick oven. Some prefer to beat it very well before rolling out. The sugar may be omitted.

Almond Biscuits.

687. Take four ounces of sweet and two ounces of bitter almonds, blanch and beat them till smooth, then add one pound of loaf sugar, *not* sifted; mix all well together; beat the white of an egg to a strong froth, then mix it with the rest; bake in rough lumps on wafer paper, or writing paper will do if buttered to prevent sticking. A quick oven is necessary, and they should be done to a nice brown.

Another.—Pound and sift three quarters of a pound of loaf sugar, whisk well two fresh eggs, and mix the sugar lightly with them, adding flour enough to make a thick batter. Lay the cakes on a buttered writing paper, and on the top of each, place three or four halves or quarters of blanched sweet almonds. Put them immediately into a quick oven and bake a nice brown.

To Make Macaroons.

688. Rub well together in a small mortar half a pound of sweet almonds and half a pound of lump sugar, then add the whites of six eggs, previously beaten; mix the whole together, drop them on wafer paper, shake a little sugar over them, and bake in a slow oven.

Gourock Rice Biscuits.

689. Mix together one pound two ounces of flour, half a pound of butter, ten ounces of sifted sugar, six ounces of ground rice, half an ounce of sal-ammoniac, and a quarter of a pound of currants; then bake.

Water Biscuits.

690. Into one pound of flour rub three ounces of butter, add a sufficient quantity of water to make it a stiff dough; well knead it, and roll it as thin as wafers; prick with a biscuit-pricker, and bake a very pale brown.

Orange Biscuits, or Little Cakes.

691. Boil whole Seville oranges in two or three waters till most of the bitterness is gone; cut them, and take out the pulp and juice; then beat the outside very fine in a mortar, and put to it an equal weight of double-refined sugar, beaten and sifted; when extremely well mixed to a paste, spread it thin on china dishes, and set them in the sun, or before the fire; when half dry cut it into what form you please, turn the other side up and dry that; keep them in a box with layers of paper. They are for desserts, and are also useful as a stomachic to carry in the pocket on journeys, or for gentlemen when shooting, or for those who have weak stomachs.

Volatile Biscuits.

692. Mix one pound of flour, half a pound of loaf sugar, and a quarter of a pound of butter into a paste, with two eggs and a tea-spoonful of carbonate of ammonia dissolved in a little milk.

Ginger Biscuits.

693. Take one ounce of powdered ginger, a quarter of a pound of butter, half a pound of moist sugar, three-quarters of a pound of flour,

and a table-spoonful of milk; put all excepting the flour into a sauce-pan, stir it one way till it boils briskly; then put it in a bread-pan to cool, and when milk-warm mix the flour, gradually stirring it all the time; when sufficiently stiff roll it out, and bake the biscuits in a quick oven for a quarter of an hour.

Captains' Biscuits.

694. Captains' biscuits are made with fine flour and new milk only, or with water and a *very little* butter instead, about a quarter of an ounce to seven pounds of flour; when the paste is made very smooth, divide it into small lumps and roll them out, after which they should be still further extended with the fingers, and pricked all over. They require from ten to fifteen minutes baking in a rather brisk oven.

Plain Biscuits.

695. One pound of flour, four ounces of sugar, two ounces of butter, mixed with warm milk into a stiff paste, it must be well worked for an hour, then rolled out, cut into shapes and baked.

Tunbridge Biscuits.

696. Mix one pound of flour with half a pound of butter and a quarter of a pound of sugar, one ounce of carraway seeds, and the beaten yolks of two eggs. Moisten with thin cream, and roll the paste out very thin; cut out the cakes with a large tea cup dipped in water or flour to prevent the paste sticking, and bake on tin plates.

To Make Sugar Biscuits.

697. Take butter and sugar of each one pound; six eggs, leaving out two whites; beat all this in a mortar for an hour or more; flavour with orange-flower-water or lemon-juice; then add gradually one pound of fine flour. Drop the paste, in small lumps, on paper or in patty pans, and bake quickly.

CHAPTER VIII.—FERMENTED LIQUORS.

General Remarks.

698. In the Chapter devoted to the description of fermented liquors as made for sale, the principles of fermentation are described at some length, and the processes by which porter and beer are brewed, as

well as those by which foreign wines are made. (See pages 163 to 200). It will, therefore, only be necessary here to give directions for the management of those fermented liquors which can be made at home to greater advantage than they can be bought, either in consequence of their high price or their bad quality, as supplied to the public. In wines and spirits it is impossible to compete with the wine and spirit merchant, in point of quality; for no efforts of the housekeeper, however accomplished she may be in the department which has received the name of the "still-room," will enable her to concoct French brandy, claret, champagne, hock, burgundy, or, in fact, any of the best foreign wines. But where their prices cannot be afforded she may be able to make what are called sweet-wines, which will serve the purpose of showing her hospitality, and which by some people are really preferred to all others. Some of them are very palatable, certainly, as ginger-wine, malt-wine, sparkling gooseberry, or rhubarb; but the majority are vile compounds of vinegar and sugar, the alcoholic fermentation being very imperfectly conducted, and passing into the acetous, to correct which large quantities of sugar are added. The subject, therefore, will be confined to the methods of making—1st, *home-brewed beer;* and, 2nd, *cider* and *home-made wines.*

Sect. 1.—Home-brewed Beer.

699. It cannot be pretended that porter, ale, or beer, can be brewed at home of better quality than is offered for sale by some of our best brewers. Nothing in the shape of malt liquors can be produced more bright, genuine, and wholesome than Allsop's or Bass's bitter and pale ales, as well as those of many other public brewers; but with regard to inferior qualities, such as table-beer and ale of moderate strength, suited to the regular consumption of a household, the home-brewed article may challenge competition, and will very often bear off the palm. Besides this, the price is considerably lower, as we shall presently see; and, as compared with the average quality of beer retailed at the public-houses, home-brewed is certainly far more wholesome and more palatable also. In the section treating of the brewing of beer for the purposes of sale, I have described the principles upon which it is there conducted, and it will, consequently, only be necessary here to allude to the practical details in which the brewing of beer at home differs from the method adopted by the public brewers.

Materials for Home-brewing.

700. These are exactly the same—viz., malt, hops, yeast, water, and, in some cases, sugar and isinglass. These have already been fully described in par. 388 to 401. It may here be repeated, that quality is of the greatest importance in all brewing operations, consequently it does not answer to buy cheap articles, unless they are really so, as compared with better articles costing more money.

The Utensils.

701. These have also been described at par. 402 to 413, with an allusion to the fact, that for private brewings a sherry-butt, cut in two, answers well enough for the purpose. The most economical charges for domestic plant are as follows, according to the scale upon which the brewing is to be conducted. For brewing only eighteen gallons of beer, all that is required is a mash-tub contrived out of a small cask, with a false bottom, as shown in par. 404. If the brewer has this, which he ought to be able himself to convert into what he wants, and a copper holding the quantity of water, he may always manage to find vessels of some kind to cool his beer in, provided only that he has ingenuity in adapting them. A washing-tub, although made deep enough to hold more beer than will cool readily, need not be filled more than four or five inches deep, and the beer will then cool as well as if in a regular cooler. In this way a pound will generally buy all that is requisite; as most poor men even have a boiler of some kind in their cottages, and an iron one will answer just as well for brewing as the most expensive copper.

No. 1.—Plant for Brewing Two Hogsheads.

	£	s.	d.
Eighty-gallon tinned-iron boiler and setting	3	8	0
Sixty-gallon mash-tub	1	10	0
Underback	1	0	0
Mash-strainer	0	5	0
Two buckets	0	6	0
Hop-back	0	8	0
Spigot	0	0	9
Coolers	2	0	0
Fermenting tun	2	0	0
Barrels	1	15	0
	£12	12	9

No. 2.—Plant for Brewing Thirty-six Gallons.

	£	s.	d.
Forty-gallon tinned-iron boiler and setting	2	10	0
Forty-gallon mash-tub and underback	0	18	0
Sieve	0	3	0
Cooler, and 36-gallon fermenting tun	0	15	0
Tap	0	0	9
Four 9-gallon or two 18-gallon casks	1	16	0
	£6	2	9

Proper Strength.

702. The Proper Strength to brew the beer is the next thing to be considered, and this will depend in a great measure upon the use to which it is to be applied. Thus, the hard-working labourer or mechanic, who requires actual support, will not obtain much benefit from any beer made with less than three or four bushels of malt to the hogshead, of which, however, he only requires enough to take with his dinner or supper. But for those who are engaged in hay-making, or any work producing much perspiration without great bodily fatigue, a smaller and weaker beer will do better, as it is required chiefly to quench the thirst, and consequently four quarts of this are better than two of a beer made with double the malt. The late Mr. Cobbett, in his *Cottage Economy*, instituted a most unfair comparison between tea and beer, the former of which he made out to be the root of all evil, and the latter the greatest boon to the labourer; but not only was he mistaken in his conclusions, but he was also wrong in his facts, since it is now established by all chemists, that tea, coffee, and cocoa, contain an active principle, even more capable of affording support than the alcoholic stimulus of beer. The test, by keeping a pig on tea alone, proposed by Mr. Cobbett, is simply absurd, since no one dreams of feeding men, or women either, upon this beverage alone, but it is in combination with other food that its use is advocated, and from the result of actual trial, gains fresh ground every year. If a man has only plenty of meat and bread, with good wholesome vegetables, he can do exceedingly well without his beer; though I am quite of opinion, that to a hard-working man, a quart or even three pints of good beer daily, are a great advantage in every respect. Mr. Cobbett recommended the labouring man to brew his beer with three bushels of malt, and three pounds of hops to the hogshead, and this is, I think, about the best general strength, though, in the

summer, he will do better with more water and hops in proportion. For table-beer, as used in families, two and a half bushels of malt, and three pounds of hops, will be found to be better liked in these days of bitter beer, and will make a drink quite strong enough for all ordinary purposes. This, however, is more particularly specified in pars. 414 to 422.

Brewing at Home.

703. Brewing at home is frequently conducted so as to produce two sorts of beer, namely, ale, which keeps some little time, and table-beer, which soon turns sour. It is better, however, I believe to brew all one way, as the small beer is never properly appreciated, and is often wasted in order to compel the use of the superior beverage. When only one kind is brewed, the process is similar to that described at par. 414; but supposing a small quantity of two kinds is to be brewed, as eighteen gallons of ale and thirty-six of small-beer, the method of proceeding will be as follows:—The utensils required will be those specified in the estimate No. 2, with an additional eighteen-gallon cask for the ale. The mash-tub has no false bottom, but is prepared as follows: it must be a little broader at top than at bottom, and a little wider than it is deep. In the middle of the bottom a hole, two inches in diameter, is to be cut, and this is to be closed by means of a stick fitted into it, and rising above the level of the tub, the bottom being tapered so as to fit the hole without leakage, and to pass easily through a bunch of fine birch twigs tied at each end, which is to be laid over the hole to act as a strainer or hop-back. A weight is sometimes placed upon these twigs to keep them from rising with the stick; but this may easily be prevented by tying a forked stick to them, and holding it in the left hand, while the right lifts the plugging stick, or stirs the grains, or by nailing it down with tapes. Having now heated the copper full of water you get ready the malt, of which three bushels will suffice; and as this will suck up twelve gallons of water, is is necessary, in order to draw off nineteen gallons of wort for the ale (which quantity will allow for evaporation in boiling subsequently), to put in the mash-tub thirty-one gallons of water, at 170 degrees. Then stir in the malt, using for that purpose an ordinary broom-stick, with three or four short pieces of wood nailed across it, with which the malt is to be well mixed with the water, and then it should be covered up with sacks, and left for two hours. At the end of that time the stick corking up the hole in the middle is to be very gently raised, so

as to allow the wort to trickle out very slowly; and this is effected by depressing the one stick attached to the bunch of birch, while the plug-stick is raised. In order to keep it exactly at the proper height, it is only necessary to tie the two together with a piece of twine wound round them, as the grains will prevent their falling out of the perpendicular. The wort falls into the underback, and when the nineteen gallons are drawn off, the first of which should not be collected, but returned into the mash-tub, push the stick firmly into the central hole, and mash again with another twenty-eight gallons of water, at 174 degrees. As soon as this is well stirred up, ladle the ale wort into the copper which is now empty, and then put into it a pound and a half of hops, taking care to separate them well with the hand previously. Next, make the copper boil, and keep it gently boiling for an hour, or rather more, or until the wort is well broken up (see par. 415); then damp the fire and draw off the wort into the coolers, straining off the hops as it passes into them. By the time that the copper is filled with water, and the latter is hot enough, you may draw off the first mashing of the small-beer into the underback; and as it runs out pour in more water, at 175 degrees, to the extent of about nineteen or twenty gallons, after which no more water will be wanted, and the copper may be prepared for boiling the two mashes of small-beer, which, as it holds forty gallons, it will readily do. The first small-beer mash may now be ladled into the copper and the fire started again, adding at the same time half the quantity of hops for this brewing, or a pound and a half; then, when the next mash is drawn off, which it may be at the end of an hour from the first letting the water in, add the other moiety of the hops, and boil the whole thirty-eight gallons for at least two hours, by which time they will not make more than thirty-six, the quantity wanted. While this is going on, the mash-tub and underback are being taken down to the cellar to be used as fermenting tuns, the former for the small-beer, thirty-six gallons, and the underback as a subsidiary one for the ale, which must now be carried down in buckets to fill it, supposing it cool enough, which it ought to be. When this is done, strain the small-beer wort from the copper into the coolers, now emptied of the ale wort, and when it is cool enough, remove it down into the former mash-tub, now converted into a fermenting tun. In this way, by a little management, with very limited and apparently inefficient utensils, a brewing of eighteen gallons of ale, and thirty-six gallons of small-beer may be carried out with just as good a chance of success as if the apparatus

cost twenty pounds; the only thing requiring care being the cooling, which should, if possible, be managed in an open shed, so as to insure a quick lowering of the temperature. Unless, therefore, there is such a convenience, aided also, if possible, by a gutta-percha pipe and stream of cold water (see par. 408), it will be in vain to attempt the brewing of this beer when the temperature of the outer air is above 50 degrees. But when the brewing is intended to be all of one kind of beer, though it would be better if possible to keep the first and last mashes separate, the utensils are not sufficient for the purpose, and they must therefore be mixed together. The three mashes may then be conducted exactly as before; but when in the cellar they may be put together as nearly as the brewer can manage it. The fermentation is to be conducted exactly as is described at par. 417, and it will generally be found that in about ten days or a fortnight the small-beer will be fit to drink, while the ale will require three months' time to make it fine. The latter will not be very strong, but the small-beer will be certainly worthy of its name, and pleasant while fresh.

704. The cost of these qualities of ale and beer are as follows:—

COST OF EIGHTEEN GALLONS OF ALE AND THIRTY-SIX OF SMALL-BEER.

	£	s.	d.
3 bushels of malt	1	5	6
4½ lb. of hops	0	4	6
Yeast, firing, and labour, paid for by the grains.			
	£1	10	0

The grains are always considered to pay for the brewer, the firing, and the yeast. This ale, if purchased, would cost about one shilling and threepence per gallon, and the small-beer about sixpence; the two together, we will say, coming to two pounds and sixpence, so that there would be a clear saving of ten shillings and sixpence on this quantity. If, however, we calculate to brew fifty-four gallons of beer from the above quantity, the value of the whole would be, at ninepence per gallon, exactly the same; and indeed there would then be a saving of nearly twopence halfpenny per gallon, the home-brewed beer costing sixpence halfpenny and a fraction over.

705. BEER made with a mixture of malt and sugar will vary in cost according to the relative price of the two articles. The malt should be mashed as usual, and all the power of the whole quantity of water exerted upon it by the ordinary number of washings, then add the sugar, and boil with the hops.

Relative Cost of Sugar and Malt.

706. It is found by experiment, that twelve pounds of raw sugar, of good quality, are equal to a bushel of malt in saccharine matter; and, therefore, when they can be procured for less money a saving to that extent is effected. Thus, supposing, instead of the last proportions, the following are substituted:—

	£	s.	d.
Two bushels of malt	0	17	0
12 lb. of sugar, at 4½d.	0	4	6
4½ lb. of hops	0	4	6
Yeast, labour, and firing as before.			
	£1	6	0

It will appear that there is a saving of four shillings on the whole quantity, or about three farthings per gallon. In point of economy, therefore, it cannot be denied that sugar is advantageous; but the beer produced in this way is certainly not equal in flavour to that from malt and hops alone.

707. Beer is sometimes made with sugar *alone*, and for this kind of brewing very few utensils are required, there being no mashing to be done. The hops are to be boiled in the water for ten minutes, or from that to a quarter of an hour, then add the sugar, and just barely boil up and strain. Put the whole liquor, as soon as it is cooled to about fifty-five degrees, into a barrel with the yeast, and keep it full by adding a little sound *malt* ale, as the yeast passes over. When the wort has fermented to such an extent as to have nearly, but not quite, lost its sweetness, close the bunghole, and in three or four days it will be fit to drink. The quantities and cost are as under:—

Quantities and Cost of Sugar Beer.

	s.	d.
12 lb. of raw sugar	4	6
Yeast, 1½ pints	0	4
Firing	0	8
Water 18 gallons		
	5	6

This sugar beer, therefore, will cost not quite 3¾d. per gallon; but though it is said to be equal in strength to beer made with three bushels of malt to the hogshead, and to be quite as palatable, I cannot say that in either respect my experience bears out the assertion. It is perfectly wholesome, I believe, if properly fermented, but it has not the peculiarly refreshing taste of malt and hops, and may, in my opinion, be classed with the "cheap and nasties." Treacle Beer is made in

the same way, with one quarter more of the treacle than is given above of sugar.

Spruce Beer.

708. Spruce beer is made either *white* or *brown;* the former being prepared with loaf sugar, and the latter with treacle, or molasses, as this is sometimes called. The receipt is as follows, and also the cost:—

	s.	d.
Treacle, 12 lb.	3	0
Essence of spruce, 8 oz.	6	0
Yeast, one pint	0	2
Boiling water, 18 gallons.		
	9	2

Dissolve the treacle in the water, then add the spruce, and when cool pour into it the yeast. When well stirred, it is to be poured into an eighteen-gallon cask, and treated in a similar way to the sugar beer in the last paragraph. For white spruce beer ten pounds of coarse white sugar will suffice for the above quantity of water and essence of spruce. The cost is, as nearly as may be, 6d. per gallon; and it is, for many people, a very palatable and wholesome beverage, acting slightly on the kidneys.

The Proper Management of the Vent-peg.

709. The proper management of the Vent-peg is always of great importance in the draught of malt liquors, the object being to avoid the entrance of much air to the vacant space above the liquor in the barrel. Unless some is admitted the tap will not flow, and therefore this provision must be made. The common vent-peg is perfectly efficient, if it is closed immediately after each draught, and only slightly lifted when more is required, or in fact only when the liquor from the tap ceases to flow freely. Taps are sometimes made with a double tube, so as to admit air, while they allow the fluid to run out; but in practice they do not answer. Many years ago a spring vent-peg was brought out which opened like the key of a flute, and closed itself immediately the hand was withdrawn. It answered most perfectly; but, somehow or other, it did not get into general use, and I have not seen one for at least twenty years. Nothing more is required than a small metal tube with a hole through it, closed by a flat key, which works on a side-arm, and is pressed down just like a flute key. They were sold at a low price, and might now be made for less than sixpence a-

piece, to the great advantage of all draught-liquors. A sketch of this vent-peg is shown at *fig.* 103.

Bottling.

710. Home-brewed Malt Liquors of all kinds, except small-beer, may be bottled when properly fined; and after this stage is thoroughly finished, the sooner the bottles are filled the better; whereas the ordinary plan is to leave the beer in the cask until half converted into vinegar. If the beer is fresh, it requires no addition; but if at all flat or sour, a lump or two of white sugar should be dropped into each bottle, which should then at once be corked, tied down, and stored in the cellar standing up, and only turned down on its side about a week before it is wanted for use. Beer of good quality, well hopped and not at all acid, will keep for years in this way. The best ales have been bottled for twenty or thirty years without losing all their sweetness. (*See* par. 427.)

To make Sour Beer drink like Bottled.

711. When Beer, more or less sour, is to be drunk, about four or five grains of bicarbonate of soda put into each tumbler and *beat up*, not stirred, with a spoon, will correct the acidity, and give it somewhat the flavour of bottled-beer.

Sect. 2.—Cider, and Home-made Wines.

Cider.

712. Cider is always made *at home*, when the apples are grown on the premises, and seldom in any other case, as it does not often pay to purchase the apples in order to convert them into cider. The two methods of making cider have been already given at page 182, and it is therefore unnecessary to allude to them here again.

Sweet Wines, or British Wines.

713. Sweet Wines, or British Wines, as they are sometimes called, are almost always compounded of some kind of fruit and *water*, and therefore differ from the foreign wines, which are, or ought to be, the genuine juice of the grape. In consequence of the large proportion of malic acid existing in all our native fruits, sugar must be added to the wine, and in some cases brandy also, in order to prevent the tendency which that acid has to conversion into acetic and carbonic acids

on the addition of a ferment. The great difficulty, therefore, is to avoid the Scylla of excessive sweetness, without falling into the Charybdis of vinegar; but, in making the attempt, it is too often the case that the voyager encounters them both. In some cases, as in malt, cowslip, and ginger wine, the fermentation is properly carried out; and, from the absence of malic acid, they are as sound and as wholesome as any wines can be; but in the rhubarb, gooseberry, and currant wines, so much prized by our grandmothers, it abounds, and the consequence is, that sugar must be largely added, with a result that is not pleasant to the male sex, although it may suit the palates of the feminine part of creation. Whenever these wines are intended to be effervescent, they must be bottled before the fermentation has entirely ceased.

To Fine Wine.

714. Let two ounces of isinglass be dissolved in a very little of the wine to be fined, and put it near the fire for a day or two. Beat the whites of four eggs to a froth, take out a gallon of the wine, mix all well together, and put it into the barrel; beat it well with a strong whisk of the arm for nearly an hour in the barrel; let it stand one day, and the next stop it up. In three weeks or a month it will be fine. The above is for twenty-five gallons of wine or rather less.

To Take the Tartness off Beer, Cider, Perry, or Wine in Cask.

715. Put a pound and a half of chalk, broken into small pieces, and an equal weight of fresh butter (also divided in small lumps), to a hogshead of any of the above liquors. Stop it down for three months, and it will have lost much of its acidity. A quarter of a pound of each, added to a gallon of sour home-made wine, completely restores its proper flavour.

Receipts for British Wines.

716. The following Receipts will be found to produce as good wines of their respective kinds as can be effected from such materials:—

Malt Wine.

717. Take of pale malt, ground, one bushel, and boiling water twelve gallons; infuse or mash as for beer, and strain off the wort; then add

forty pounds of loaf sugar and ten pounds of sugar-candy, dissolve in thirty-two gallons of hot water; when cooled down to fifty-five degrees, add one quart of yeast, and put it into a fifty-four gallon cask, to which add, on the third day, twenty pounds of raisins, stoned. Let it work for three days, then pour in half a gallon of brandy (British will do), and bung it down, taking care to fill the cask up with warm but not boiling water, if necessary. In four months rack it off into another cask, and add another half gallon of brandy. In a month it will be fit to drink from the wood, and in two more to bottle for keeping.

Another Malt Wine (inexpensive).—To every gallon of water put three pounds of brown sugar, boil and skim it well, when the liquor is nearly cold, put two ounces of yeast to it, and let it stand till the following day, then put it into a perfectly clean cask, with one pint of strong new ale in a state of fermentation, and one pound of raisins to every gallon. Let it stand twelve months before bottling it.

British Madeira Wine.

718. To one gallon of water add three pounds of moist sugar, boil and skim it for three quarters of an hour; when cool put to each gallon one pint of ale from the vat when working, and a table-spoonful of yeast; when it shows a white head put it into a cask, and when it has done working, put to each gallon one pound of raisins, and then stop it up. It ought to remain in the cask twelve months before it is bottled. In making a considerable quantity of this wine, two or three pounds of sugar may be saved. About a pint of brandy to ten gallons of wine will be an improvement.

Ginger Wine.

719. Take one gallon of water, three pounds of loaf sugar, one lemon, one orange, one ounce of ginger, add a quarter of a pound of raisins. Boil the sugar and water a quarter of an hour, then take a little of it to boil with the ginger and peel of the lemons and oranges for one hour. When nearly cold, mix the two together, and put in the juice of the oranges and lemons with one ounce of isinglass, and a table-spoonful of yeast. Lastly, after twenty-four hours, pour the whole into a small cask, let it remain six weeks, then rack carefully; let it remain another month, and bottle. (*This is an excellent receipt.*)

Another.—Take thirty quarts of water, twenty-seven pounds of sugar, sixteen lemons, two Seville oranges, six ounces of ginger, two pounds of raisins, and half a pint of brandy. The raisins, lemon juice, brandy,

and a teacupful of good yeast to be put into the barrel, the rest boiled half an hour, and put into the barrel when not more than new milk warm. Stir every morning for ten days ; bottle in three months.

To Make Cowslip Wine.

720. To one gallon of water put three pounds of loaf sugar; boil these together for three quarters of an hour, let the liquor stand till it is cold, then dip a toast in yeast, place it in, and let the whole work three or four days. Put it in the cask, and add one gallon of cowslip-pips (measured when freshly gathered), and the juice of an orange and lemon; stir it up well with a stick every day for nine days, then stop it up; in ten days bottle.

To Make Orange Wine.

721. To ten gallons of water put three pounds of loaf sugar, and the whites of ten eggs; boil as long as any scum arises; then pour into a tub. When nearly cold, add the juice of one hundred Seville oranges, half their peel, finely pared, and half a pint of ale yeast: let it ferment twenty-four hours, then put it into the cask with half a pint of brandy. Tun the wine when it has done working, stop it down close for three months, then rack it off; put it into the cask with half a pint more of brandy, and one or two pounds of raw sugar. Let it stand twelve months before it is bottled.

To Make Raisin Wine.

722. Put into a tub as many gallons of water as the cask for the wine will hold. The water may be cold, if *soft*, or if hard it must be boiled, and then cooled. To each gallon add seven or eight pounds of raisins (half Malaga and half Smyrna). Let it ferment in the tub five or six weeks, stirring it once a day till the evening before it is drawn off to be put in the barrel. When to be drawn off, instead of pressing the fruit in a mill, put on some large and heavy weights, and let it drain for a day or two, and add the liquor to that in the cask. Should this not be sufficient to fill it up, a small quantity of fresh water may be thrown over the fruit, and in a day or two drawn off, and applied for that purpose. When it has been in the cask a month or six weeks, rack it, and add to it some French brandy, in the proportion of *at least* two bottles to a hogshead. Then let it remain unstopped, with a perforated tin only placed over the bunghole for a year *at least*, when it will be fit to bottle; and when that is done it will be best for safety to

let the bottles stand upright. The fruit should not be picked, but put into the tub altogether as it comes from the grocer.

To Make Black and Red Currant Wine.

723. To every quart of water add two pounds of currants and half a pound of loaf sugar; break the currants in the water, and then strain the liquor before the sugar is added; it will be fit to put in the cask in twenty-four hours after it is made.

Another.—Add ten pounds of currants to a gallon of water, squeeze them, and let the liquor stand two days in a tub, stirring it occasionally, then press the currants and strain them through a sieve; to every gallon of liquor put four and a quarter pounds of lump sugar; let it stand in the tub two days more; take off the scum and tun it; leave the bung loose a month or two, then stop it close; let it stand three or four months, then try it, and if too sweet stop it up again till the sweetness has gone off, opening the bung to taste it. Put in what raspberries you like, and if they are ready before the currants, put them in brandy and sugar.

Damson Wine.

724. Gather the damsons on a dry day, weigh and bruise them; to every eight pounds of damsons put a gallon of water (first boiled and skimmed); put it boiling on the fruit, and when it has stood two days pour off the liquor and put it into the barrel, with three pounds of moist sugar to each gallon; fill the barrel, and stop it close; when bottled put a lump of sugar and a little brandy into every bottle.

Elder Wine.

725. If two gallons of wine are to be made, get one gallon of elderberries and a quart of damsons or sloes; boil them together in six quarts of water for half an hour, breaking the fruit with a stick flat at one end; let the liquor run off, and squeeze the pulp through a sieve or cloth; boil the liquor up again, with six pounds of coarse sugar, two ounces of ginger, two ounces of allspice bruised, and one ounce of hops, the spice to be tied loosely in a small piece of muslin; let this boil more than half an hour, then pour it off; when quite cool stir in a teaspoonful of yeast, and cover it up to work; after two days skim off the yeast, and put the wine into a barrel. When fermentation ceases, which will be in about a fortnight, paste a stiff brown paper over the bunghole; after that it will be fit for use in about eight weeks, but it

will keep for years. The bag of spice may be dropped in at the bung-hole, having a string fastened from it to the outside which will keep it from reaching the bottom of the barrel.

Another.—Procure elderberries when quite ripe; bake them in an oven with the bread, then strain the juice from them; to six gallons of water put three pounds of moist sugar; boil it one hour, and skim it; when it is cool put one quart of juice to every gallon of liquor; spread a toast thickly with yeast, put it in, and let it stand for a week; then put the wine in the cask; to every gallon add one pound of raisins; a pint of brandy to every three gallons of wine will be an improvement.

White Elder Wine.

726. To a quart of white berries add a quart of water, boil it, pass it through a sieve, but do not press the berries; to each gallon of this liquor put three pounds of lump sugar; let it boil, skim it, and when milkwarm work it with a barm-toast for five days; stir it two or three times a day; to about five gallons of the liquor put three pounds of Malaga raisins, chopped; before the wine is put into the vessel wash it with brandy; stop it up when it has done working; to each gallon put the rind and juice of a lemon. Lisbon sugar will make it as good as the lump.

Elderflower Wine.

727. To every gallon of water put four pounds of sugar, half a pint of elderflowers *not* pressed down, and one table-spoonful of yeast. Mix these altogether and put them in a barrel, stir it *every* morning for a week, then stop it up close; it will be ready to bottle in six weeks. (*A delicious wine.*)

To Make Elder Wine with Cider.

728. To every gallon of cider run clear from the mill put two pounds of brown sugar, one pound of Malaga raisins, and one quart of elderberry juice; put it into a tub, and stir it once or twice a day; when the sugar is dissolved put it into a barrel, and when it has done working put to every gallon one pennyworth of sweet orrice-root, cut small; do not stop the bung till March; it may be bottled in the same year, but it is better to wait till the March or April following. The juice may be prepared and kept till the cider is ready; but it must be mixed with part of the sugar.

Blackberry Wine.

729. Gather the blackberries when they are full ripe and dry. Take twelve quarts and crush them with the hand; then boil six gallons of water with twelve pounds of brown sugar for a quarter of an hour, skim it well, and pour it on the blackberries, letting it stand all night; then strain it through a hair sieve, and put it into a cask, with six pounds of Malaga raisins and one ounce of isinglass dissolved in a little cider. Stir all up together, and then stop up close, letting it stand six months before bottling.

Gooseberry Wine.

730. Take ripe gooseberries, beat them in a mortar, and put into a tub one quart to each quart of water; let them stand all night, then strain through a hair sieve, and press them with the hand. To every gallon put three pounds of moist sugar. Let it stand two days, and then put it into a cask with one pound of Malaga raisins to each gallon of liquor; add a little brandy, and let it remain in the barrel three or four months, or till fine; then bottle it.

Another Receipt.—To thirty-six pounds of very ripe fruit add three gallons of boiling water, let them stand twenty-four hours; strain them off; add twelve pounds of good moist sugar, stir and skim for twenty-four hours more, then put into the cask to ferment. It will be ready to bottle in four months.

Green Gooseberry Wine.

731. To six pounds of unripe gooseberries, well picked and mashed, add one gallon of water. Let it stand several days, stirring it twice a day; then to every gallon of liquor add three-quarters of a pound of loaf sugar. When it has done fermenting put a quart of brandy to every five gallons, with a good ounce of isinglass steeped in it. Stop it down, and in six months bottle it.

Gooseberry Champagne.

732. Gather the amber gooseberries *when just turning*, and pour cold water over them in the proportion of three quarts of water to one gallon of fruit; let the preparation stand a week, stirring it every day, and bruising the gooseberries till quite mashed; then strain through a sieve, and add to every gallon of liquor four pounds of moist sugar; let the fermentation proceed for two or three days, then pass through

a flannel bag into the cask, leaving it open till the fermentation subsides; add to every five gallons of wine half an ounce of isinglass dissolved in a little of the same, and close the cask. If the champagne is required to be potent, add, before closing the cask, a bottle or two of brandy; but the wine will be brisk and agreeable without. It should remain twelve months in the cask before bottling.

Rhubarb Wine.

733. Take five pounds of rhubarb, cut as for tarts: add one gallon of cold water, and put it into a tub for eight or nine days, stirring it well two or three times each day. Strain, and to every gallon add four pounds of loaf sugar, the juice and part of the rind of a lemon; put it in a cask with at least half an ounce of isinglass dissolved in a little of the liquor; a little brandy may be added. Stop down the cask for a month, and bottle in ten or twelve months more.

To Make Parsnip Wine.

734. Let the parsnips be well cleaned, slice them, and to every gallon of water put three pounds of parsnips and three pounds of good moist sugar, boil them to a pulp, strain off the water, and well wash the pulp with part of it; skim it well while boiling; when boiled put it in a tub, and when sufficiently cold put it into the cask with a table-spoonful of yeast, and after it has fermented properly add what quantity of spirit you please, and stop it up.

Another.—Four pounds of parsnips sliced; one gallon of water; boil till quite tender and strain it off; add three pounds of loaf sugar, half an ounce of crude tartar, and finish it like rhubarb wine (par. 733).

Vine Wine (Drinks like Foreign Wine).

735. Take forty pounds of the leaves, tendrils, and shoots of the vine, wash them clean in cold water, put them into a tub and pour six gallons of boiling water over them, cover it with a blanket and let it remain for twenty-four hours, then pour the water from the leaves, &c. into a sweet cask, and add to the leaves five gallons of fresh boiling water, let this also stand twenty-four hours, when it should be strained off into the tub—the leaves, tendrils, &c. being pressed in a clean cloth to extract all the juice still remaining. Dissolve thirty pounds of sugar, which stir well into the wine, and leave it to work without yeast. When the working has ceased draw a little of the wine, dissolve two ounces of isinglass in it, and add it to the rest, stirring it well.

Bung it up and draw the peg once or twice a day, until it has done blowing, then stop it until March, when it should be bottled: this wine must be kept three years before it is fit to drink.

Lemon Wine.

736. Boil sixteen pounds of sugar in four gallons of water till the scum has done rising, which may be accelerated by using some whites of eggs. Add to this three-quarters of a pound of sliced race ginger, and let it boil a few minutes; pour the whole hot on the peel of six lemons; strain the liquor through a sieve before putting it into the cask, and when milk-warm add a little yeast on a toast. The next day add the juice of the lemons; let it remain six weeks unbunged, then add one pint of brandy. In four months it will be fit to bottle. The above quantity makes eighteen or nineteen bottles.

British Grape Wine.

737. Pick the grapes from the stalks, and squeeze the juice away, then grind and press the pulp in a cider-mill; to every gallon of liquor add two pounds and a half of sugar if the fruit is ripe, otherwise three pounds; let it stand in a tub two or three days, stirring it several times each day; rinse the cask with brandy, and put it in; it must be stopped up (according to the degree of fermentation which has taken place) in about three weeks or a month, having a vent-peg in the cask; it is best racked in a few months and brandy added, about a bottle to twelve gallons, with an ounce of isinglass to about ten gallons; let it remain in the cask not less than a year, nor more than a year and a half; the riper the grapes the better, provided they are secured from insects.

Birch Tree Wine.

738. In the beginning of March, when the sap is rising, bore holes in the trunk of the tree, introduce tubes of elder, and the sap will flow out. Boil the sap with four pounds of sugar to each gallon, and ferment it like other wines.

Dandelion Wine.

739. On two quarts of dandelion flowers pour one quart of boiling water, and let it stand all night; the next morning strain it, and add three pounds of sugar and one lemon; then boil for half an hour.

When cool put it in the cask with a little yeast spread on a toast. It will be fit to bottle in two months.

Sparkling Mead.

740. Boil fourteen pounds of honey in six gallons of water for half an hour, breaking into it three or four eggs; then add small bunches of marjoram, balm, and sweetbrier, half an ounce each of cinnamon, cloves, mace, and bruised ginger, and boil a quarter of an hour longer; pour it out to cool, then toast a very large slice of brown bread, spread it over with fresh yeast, and put it into the liquor; let it ferment for a day, then put it in the cask, but keep it open till the fermentation is complete. Some add a bottle of Moselle or Hermitage before they close the barrel. It may be bottled in a month, and the corks must be securely tied.

Mead.

741. To every gallon of water put four pounds of honey, and boil it three-quarters of an hour, taking care to skim it. To every gallon add an ounce of hops, then boil it half an hour, and let it stand till next day, when put it into the cask, and to thirteen gallons of the liquor add a quart of brandy. Let it be lightly stopped till the fermentation is over, and then stop it very close. If you make a large cask, keep it a year before bottling, and for a smaller cask in proportion.

Cowslip Mead.

742. Put thirty pounds of honey into fifteen gallons of water, and boil till one gallon is wasted; skim it, take it off the fire, and have ready a dozen and a half of lemons quartered; pour a gallon of the liquor boiling hot upon them, put the remainder of the liquor into a tub, with seven pecks of cowslip-pips; let them remain there all night, and then put to the liquor and the lemons eight spoonfuls of new yeast, and a handful of sweetbrier; stir all well together, and let it work three or four days. Strain it, and put into the cask; let it stand six months, and then bottle it for keeping.

Sect. 3.—Liqueurs, Punches, &c.

743. Liqueurs are compounds of alcohol with some flavouring material, of which the following receipts give many varieties. They are most of them, as now made, very sweet, and somewhat cloying; but, in small quantities, not unwholesome.

Curaçoa.

744. Take one pint of brandy, and pare into it the rind of six Seville oranges as thin as possible; let this stand for three days, stirring it very often, then add the juice of the oranges, and two quarts of brandy, five pounds of loaf sugar bruised, and one pound of sugar-candy powdered; stir it well for half an hour, and let it remain two days longer, stirring it during the time; then strain and bottle it. It should not be opened for six months, and the longer it is kept the better.

Ginger Cordial, as a Liqueur.

745. Take one pound of raisins, the rind of one lemon, and three-quarters of an ounce of bruised ginger. Steep these ingredients in a quart of best whisky or brandy, then strain it, and add one pound of powdered loaf sugar to every quart of juice.

Maraschino.

746. Take the rinds of twelve Seville oranges and five lemons, peeled very thin, and three pounds of sugar-candy; steep the whole in one gallon of gin four days and nights. Stir it frequently, and run it through filtering paper to clear it.

Another.—To a bottle of English gin add two ounces of bitter almonds, blanched and bruised, and six ounces of white sugar-candy. Mix, and let it stand a fortnight. Strain it, and it will be ready for use in another fortnight.

To Make Noyeau.

747. Blanch and pound two pounds of bitter almonds, and put them into a gallon of white brandy, with two pounds of white sugar-candy, a nutmeg grated, and half an ounce of mace. Stir it about well every day for twelve days, then leave it for six weeks, when it may be bottled, but must be kept some months before it is ready for use.

Creme de Noyeau.

748. Take two quarts of spring water with two pounds of loaf sugar boiled in it, and put it into a gallon of either brandy or rum. Add three half-pints of boiled milk to it, and the peel of five lemons. Blanch and bruise half a pound of bitter almonds, and put them in. Let the ingredients stand together five days, stirring well each day.

Filter it through a sheet of cap-paper, and bottle it. It may be drunk in a month, but improves by keeping.

Ratafia.

749. Blanch two ounces of peach and apricot kernels, bruise, and put them into a bottle, and fill nearly up with brandy. Dissolve half a pound of white sugar-candy in a cup of cold water, and add it to the brandy after it has stood a month on the kernels, and they are strained off; then filter through paper and bottle for use. The leaves of peaches and nectarines, when the trees are cut in the spring, being distilled, are an excellent substitute for ratafia in puddings.

To Make Rum or Brandy Shrub.

750. Strain the juice of twelve Seville oranges and the same quantity of lemons; pour it upon the peel of half the quantity of fruit, and add one pound of loaf sugar. When the sugar is dissolved by stirring, add a gallon of rum or brandy. Put all except the peel into a cask, and shake it every day for a week, then let it stand till fine, and bottle it.

To Make Currant Brandy or Shrub.

751. Take one gallon of brandy, three pints of white currant juice, three pounds of loaf-sugar, and the peel of three large lemons; then take a quarter of a pound of bitter almonds, blanched and bruised, and put them into one quart of spring water, letting it stand some hours. Add it to the other ingredients, and let all stand for three days, stirring often. Strain through a jelly-bag, and bottle when clear.

Orange Brandy.

752. Take the rinds of three lemons and eight Seville oranges, peeled very thin, and three pounds of fine loaf-sugar pounded, or sugar-candy. Steep the whole in one gallon of brandy for four days and nights, stirring it frequently, and run it through filtering-paper to clear it.

To Make Raspberry Brandy.

753. To one gallon of brandy put two quarts of raspberries; bruise them in a little of the brandy; let them steep ten or twelve days: cover them up close, then strain through a sieve; put to the liquor three-quarters of a pound of sugar; when it is fine bottle it.

Fine Raspberry Cordial.

754. Fill a large stone jar with ripe raspberries, cover the jar closely, and let it stand by the fire till the fruit is heated so as to break. Squeeze the juice through linen into a pan. To every quart allow one pound of loaf sugar in small lumps. Mix well, give it a boil and skim it well. When the scum has ceased to appear, measure the liquid and add to it an equal quantity of French brandy. Stir it well, and when cold put it into a stone jar and cork it tightly. Let it stand a fortnight. Then if not perfectly clear filter it through a sieve lined with blotting paper. Bottle and seal the corks.

To Make Punch.

755. To four quarts of boiling water put one pint of brandy and one pint of rum, the peel of two lemons, with the juice and sugar according to taste.

Milk Punch.

756. Take one quart of lemon-juice, four or five quarts of rum, four quarts of water, two quarts of milk, and three pounds of loaf sugar. Pare the lemons, then mix the juice, rum, and water, and dissolve the sugar in them; after which pour in the milk boiling hot, and put in the peel of four lemons. In a few minutes taste it, and if it is not to your taste make it so, by adding more of any ingredient apparently deficient. Run it through a bag, and bottle it. It is fit for use immediately, or it may be reserved for future consumption.

Essence of Punch.

757. Essence of punch is made of one bottle of rum, and two bottles of brandy, the peel and juice of three Seville oranges and six lemons, and three pints of strong green tea, with one pound of sugar.

To Mull Port.

758. Put half a pint of water into a clean saucepan, with three ounces of sugar and a little nutmeg and cloves; boil all together for a few minutes; then add from six to twelve glasses of *rich* port wine; do not allow it do more than boil for a moment, and pour out into a jug ready for use.

To Mull Claret.

759. Boil gently the sugar and spice in just enough wine for the purpose; then add the remainder, and boil as above for a second or two. Serve in silver.

To Make White Wine Whey.

760. Boil a pint and a half of skimmed milk, add two glasses of raisin or sherry wine, fifteen grains of purified nitre, and lemon-juice enough to turn the milk; boil it up, and then set it aside until the curd subsides; strain it, and add enough sugar to make it pleasant; one half to be taken on getting into bed, the other ten minutes afterwards.

Badminton.

761. Peel half of a middle-sized cucumber, and put it into a silver cup, with four ounces of powdered sugar, a little nutmeg, and a bottle of claret. When the sugar is thoroughly dissolved, pour in a bottle of soda water, and it is fit for use.

Cider Cup.

762. Make a square toast less than the size of the cup, grate upon this some ginger and a little nutmeg. Put in the cup with the toast two or three ounces of sugar, according to the palate, and a glass or two of sherry, then fill up with cider, and serve.

Cool Tankard or Ale Cup.

763. Cool tankard, or ale cup, is made in the same way as (762), using ale instead of cider.

Another Cold Cup.—One gill of white wine, one gill of fresh beer, one pint of good sweet cider, two slices of lemon, one sprig of balm, a little nutmeg, and sugar to taste.

Egged Wine.

764. For each half-pint of egged wine intended to be made, take two eggs, beat them up thoroughly in a small basin with an ounce and a half of white sugar (fine moist will do), and a little powdered nutmeg and cloves. While doing this, heat half a pint of sherry and water, in equal quantities, or stronger of the sherry if desired; and when boiling hot stir it into the eggs, after which pour the whole backwards and forwards, from the saucepan into the basin, and *vice versa*, until it

thickens. If this, from the coldness of the atmosphere, does not take place, it must be put on the fire again, and constantly stirred till it does, which never fails in a few minutes.

Egg Flip.

765. This is made in the same way as egged wine (764), substituting good ale for the sherry and water, and occasionally adding a little brandy, if the ale is not strong enough.

To Make Negus.

766. Take one bottle or rather more of raisin wine, one third of a bottle of sherry, and enough sugar to sweeten it. Some of the sugar having been rubbed on the peel of a lemon, pour over it four quarts of *boiling* water, and add lemonade or lemon-juice to the taste.

Sect. 4.—Vinegar Plain and Flavoured.

767. The Methods used in Making Vinegar have been described at page 148, where there are two or three receipts given, which may be used in the home-manufacture of the article. White-wine vinegar *may* be made, if desired, using the newest samples of *unbrandied* wines which can be purchased, and treating them exactly as described in par. 349. This, however, will cost rather more than the wine itself from the loss in evaporation, &c., and therefore few people will consider it worth their while to make the attempt, especially as genuine imported white-wine vinegar may be purchased by going to respectable houses at a much less cost. At par. 350, a receipt is given for sugar-vinegar, which provides this article at a cost less than retail price, and of a very superior quality. According to that method, vinegar costs about 6d. to 8d. per gallon, and the quality is quite equal to that retailed at 2s. or even at 2s. 9d. Malt-vinegar, well made, is superior in flavour to sugar-vinegar; but it takes a longer time to acetify, and also costs more in labour and money. By the use of a barrel, set on end, instead of on its side, and with a small frame worked through the head of the barrel by a rod, and supporting a few bundles of birch steeped in water and well cleaned, the quick principle used by Messrs. Hill and Co. may be readily adopted in private houses without any increase of cost. It is only necessary to obtain a barrel large enough to hold rather more than double the quantity of vinegar to be made, then take out the head, and cut a hole in its centre to admit a mop-stick to

work up and down freely. Next, make a circular open frame, rather smaller than the cask, and attach the mop-stick to its centre; tie the birch loosely upon this, and then pass the mop-stick through the hole in the head of the cask, and let the cooper head it in as usual. Make a hole in the mop-stick to receive a peg when pulled up, so that it will not fall down again, and the apparatus is complete, beginning with the birch frame, &c., at the bottom of the cask. Put it in a place where it will be kept at an uniform temperature of about 80 degrees, and then introduce the wort through the bunghole, which is to be left open, or only partially closed. When the wort is in, lift the mop-stick with its frame, and keep it up by pushing the peg into its place. In a short time the wort will all run down again, and then the peg must be taken out, the stick pushed down to the bottom and raised again, putting in the peg to keep it there. By repeating this once after every meal, or at any other fixed period, the process is considerably accelerated, and the vinegar *is made of a better quality also*, being quite equal to that retailed at 2s. 9d. a gallon. The principle of this method will be more readily understood by referring to par. 352, and its illustration (*fig.* 84). The cost of this malt-vinegar by either the slow or the quick process, allowing nothing for trouble and firing, &c. (which, as in the case of beer, will be paid for by the grains), is, at the rate of a bushel of malt to 18 gallons of vinegar, as near as may be sixpence a gallon. This proportion, however, does not make it quite strong enough to be worth the price quoted above, but sufficient for most domestic purposes; but supposing a bushel and a half to be used, that only brings the price up to ninepence a gallon; and when beer is brewed at home nothing is more easy than to set apart a portion of the wort to be converted into vinegar by either of these methods.

768. Flavoured Vinegars, that is, vinegar made with the addition of raspberries, cowslips, gooseberries, &c., are sometimes used as pleasant summer-beverages. In each case the additional sugar is in great measure converted into vinegar, while the fruits contribute in some cases a proportion of it, but chiefly their peculiar flavour. The following are good receipts:—

Raspberry Vinegar.

769. Take a quart of fruit and bruise it, to which put one quart of white-wine vinegar; let it stand three days; strain it off, and add three pounds and a half of loaf sugar; simmer it well together; when

cold bottle it for use; instead of corking, tie paper or leather, with pin holes in it, over the mouth of the bottles.

Cowslip or Primrose Vinegar.

770. Take nine gallons of water, twelve pounds of coarse sugar, half a peck of cowslips, stalks and all, and one pint of pips; pour the boiling hot sugar and water upon the cowslips; when nearly cool put three spoonfuls of yeast on a toast to make it ferment; stir it well morning and evening; on the fifth day remove the toast and a good deal of what settles at the top of the vessel (either earthenware or wooden) in which they have been put; then cask it, and treat as for sugar-vinegar, par. 350; bottle off in a year, leaving about a quart of the old stock in the cask for the next batch. Primroses are equally good.

To Make Gooseberry Vinegar.

771. To one quart of gooseberries, quite ripe and well bruised, put three quarts of cold water, let it stand twenty-four hours, then strain it off. Add one pound and a quarter of coarse sugar to every gallon of liquor, then let it stand twenty-four hours, stirring it once or twice during that time. Strain it off and put it into the cask, and treat it for vinegar by keeping it in a warm place, but not in the sun. Burn a rag to put over the bunghole, or cover this with pricked paper, and in twelve months it will be fit for use.

772. Vinegars for the Purposes of Cookery are made and kept with the object of flavouring hashes, and other made dishes. They are chiefly as follows:—

Chili and Capsicum Vinegar—

773. Are each made by infusing one ounce of chilis or capsicums in a pint of vinegar for a fortnight, and straining when it is ready for use.

Horseradish Vinegar—

774. Requires three ounces of horseradish, scraped and infused as in (773.)

Compound Horseradish Vinegar—

775. Is made with the addition to the above of one ounce of minced shallots and a teaspoonful each of black pepper and Cayenne.

SHALLOT, ONION, OR GARLIC VINEGAR—

776. May be made in the same proportion as in (773.)

CAMP VINEGAR.

777. Take of garlic two ounces, Cayenne pepper once ounce, walnut ketchup one ounce, Gorgona anchovies, chopped, eight, cochineal one scruple, and vinegar one pint; infuse two months, and strain.

CHAPTER IX.—UNFERMENTED BEVERAGES.

778. GENERAL REMARKS.—It is the fashion of the present day, among certain classes, to cry up this kind of beverage as much as it was formerly denounced. It is the same with almost every abuse; for a certain time it holds its way unchecked, and then comes a high tide which carries all before it, and goes a little further than is desirable; often overleaping the bounds of discretion, and doing injury by running into the opposite extreme. Thus, our ancestors would not let their friends please themselves, but thought it incumbent upon every body to force his guests to commit excesses, under the threat of salt and water on a refusal. This was bad enough, but I am not sure that it is worse than to make a man take a solemn pledge, knowing full well that he will not keep it. Temperance is a great virtue where there exists temptation, that is to say, where the palate is accustomed to the use of fermented liquors in excess; but when this is not the case, and they are not even relished, there can be no virtue in abstaining from what is disliked. But let not the present crusade against alcohol, in all its forms, stop short in its career without attacking tobacco and opium, which I verily believe do more harm, physically, though not perhaps morally, than alcoholic drinks. Tea, coffee, spirituous liquors, tobacco, and opium, may and are, all taken to excess; and the person guilty of the practice is intemperate in one case as much as the other. It is the general habit of *self-denial* which ought to be inculcated, and especially in children, not the particular abstinence from gin or beer. The habitual drunkard drinks very often solely to drown care, or to stimulate his exhausted frame, or sometimes from mere idleness; and it is not the mere depriving him of his one kind of stimulus which makes him virtuous, but the raising his moral tone to

such a pitch that he does not require any, or, if he feels the desire, enables him to fight against and conquer it. As far as the effects upon society go, I believe the substitution of an excess with coffee and tobacco is an advantage, because they do not lead to a temporary loss of mental control; but to the individual himself the effect is just as bad, and the nervous system especially is as surely, though perhaps more gradually, undermined. Hence it is necessary, that all the following beverages should be taken with a full knowledge that they are wholesome only in moderate quantities; and that it is not because they are approved of by the advocates of temperance that a man, or a woman either, may indulge in them to excess. I do not believe that as yet the wave has rolled far enough to do mischief, on the whole; but in individual cases I have known the practice carried too far, the victim all the while hugging himself with the idea that he was virtuous overmuch. But besides the stimulating effect of some of them, tea, coffee, soda-water, lemonade, ginger-beer, and even water itself, may be taken in such large quantities as to weaken the stomach and produce indigestion; and this is particularly the case with tea as taken by women, and soda-water and ginger-beer as patronized by men. I fully believe that all those beverages enumerated in this chapter are wholesome when taken in moderation, and may be indulged in by all ages and classes, except young children and those who are suffering from disease; but I do not think that any of them should be taken in larger quantities than half a pint at a time, and then not of a very strong infusion when they consist of tea or coffee. This amount I consider to be the outside allowance; and those who exceed it are not to be considered as entitled to the appellation by which tea-drinkers of all classes designate themselves; for however correct others may be in calling them *teetotallers*, they are not really *temperate*, however carefully they may appropriate to themselves that term.

Sect. 1.—Tea, Coffee, Cocoa, and Chocolate.

779. Tea, with reference to its different qualities and prices, has been described at page 98. It is, therefore, unnecessary to allude to them here. Most people are now agreed, that black tea is not only more wholesome than green tea of the purest kind, but that it is much less liable to adulteration. Every one, therefore, who values his health, and that of his family, should confine himself and them to the use of black tea; or, if he has so long been accustomed to the use of green

tea as to dislike the beverage without it, let him take one-eighth only of the green, and let that be of the choicest kind. Cheap Hyson and Twankay are almost always very much adulterated, and should not be used on any account.

780. The Action of Strong Tea on the human body is very exhilarating and refreshing; and when it is perfectly pure, and used in moderation, it is rather stomachic than otherwise. Either black or green tea, taken in a very strong infusion, and especially the latter, causes first of all a pleasant degree of liveliness, followed by wakefulness, which at last merges into disturbed and uneasy sleep, in awaking from which there are sometimes most distressing symptoms of depression. For this reason habitual drinkers of strong tea often require their breakfast in bed, because it is not until they have had their morning's allowance of this article that they lose the effect of the last night's indulgence in it. This is particularly the case with the female sex, when they have recourse to it in order to remove those distressing headaches over which green tea has a considerable temporary power; but, as in the case of most similar remedies, only aggravating the cause of the evil while it removes the effect. Strong tea, taken habitually, has a tendency to produce indigestion, unless it is used by those who take violent exercise; for as it confers the power of sustaining muscular fatigue in a ratio quite as great as alcohol, so if that power is not exercised the abused stomach rebels at being trifled with, and indigestion is always the result.

The Method of Making Tea.

781. The method of making Tea is too well known to need full description, especially as it has been already alluded to at par. 210. A metal teapot, as thin as possible, so as not to cool the water, is the best kind, and a thick earthen one the worst. Soft water should be preferred, or if that cannot be procured, add five grains of soda to an averaged-sized teapot with the tea. The pot should always be warmed before putting in the tea; and the harder the water the longer it must stand to get the flavour out. If soda is used, the teapot should not be more than half emptied before the second water is added, as it causes almost all the strength of the tea to be taken out in the first infusion. Some people only add it with the second water, and in that way equalize the two cups; and this is a very good plan, if the water is kept boiling hot for the purpose. The pot should be kept clean.

Coffee.

782. Coffee is even more stimulating than tea in its effects upon the system, but it is not followed by the same depressing effects. It also agrees with most stomachs, and while it supports the nervous and muscular systems quite as well, or even better, it is not so liable to produce indigestion when taken in large quantities. Its qualities, and the modes by which it is adulterated with chicory, &c., are given at page 103, 104.

783. Coffee is made in a variety of ways, or, at least, with a great number of machines; but they may be divided into three—1st, *by simple boiling;* 2nd, *by boiling with concentration;* and 3rd, *by infusion;* but prior to these it is necessary to consider the methods by which it may be converted at home from the green state, in which it is imported, into that in which it is to be used as the material for making "coffee." At par. 215, the reader is advised to purchase his coffee ready-roasted, but not ground; but as many may prefer to roast it themselves, both the methods are here given.

To Roast, Grind, and Make Coffee.

784. To roast and grind Coffee two machines are necessary—1st, a *coffee-roaster;* and 2nd, a *coffee-mill.* The roaster is a closed iron cylinder, which may either be used in front of the kitchen-fire, or it may be made to act with a small fire of its own. When a smoke-jack is used in the kitchen, the coffee-roaster need only be a plain iron cylinder, with a sliding or hinged door, and, in fact, of the size and shape of an ordinary candle-box. If this is put into the cradle-spit, shown in *fig.* 67, it will revolve with the smoke-jack without trouble, and the berries need only be occasionally examined to ascertain whether they are brown enough. The sliding-door allows of this without taking the roaster out of the cradle, and it is only necessary to lift the spit out of the chain, when the door may be pushed back readily enough. The roaster must not be nearly half-filled, as the berries swell a good deal, and they must have room to change their places or some will be more done than others. A pound of coffee will, on the average in this way, take about an hour and a half to roast, as it must not be put close to the fire at first; but so much depends upon the power of the fire, and the proximity to it, that the above will be of very little use. The smell and colour are the only guides as to its being sufficiently done. As soon as the coffee is roasted, it should be

cooled as rapidly as possible in the roaster, and then transferred into wide-mouthed glass-bottles well corked. The quantity for each day only should be ground in a hand mill, the nature of which is too simple to need description.

785. Simple Boiled Coffee is usually made in an ordinary coffee-pot, with a long spout and handle. From an ounce to two ounces of recently-ground coffee (with or without a proportion of chicory, the flavour of which is liked by some) is put in and heated on a hob of hot plate in the pot, which is to be filled up with one pint of boiling water, and put on a slow fire till it shows the slightest evidence of boiling, which it will do in a very few seconds. Then strain it through a muslin sieve or bag, and, after washing out the pot, return it into it, and warm up to the boiling point. After this it must stand on the hob for about five minutes, when it will pour out quite clear.

Another Method consists in tying up the coffee *loosely* in a muslin bag, and boiling it in the water for ten minutes, after which it may stand for a few minutes, and it will then be fine.

In the Ordinary English Method the coffee is put into the pot with the water, and boiled up as above; a teacupful is then poured out, and returned into the body of the pot, after which it is allowed to stand five minutes, when it ought to come out clear.

To refine Coffee thus boiled, isinglass, white of egg, soleskin, and other kinds of albumen are sometimes used. When it is wished to be very clear, the best plan is to beat the white of an egg up with two or three table-spoonfuls of cold water, and mix that in with the dry coffee, which is then to be boiled as usual. The egg, in coagulating, entangles the fine particles of the coffee, and prevents them escaping into the fluid. This is far the best way of using egg or isinglass.

786. The Concentrated Coffee, used in France for making their *café au lait*, is often now made by the ordinary process; but in the old French families and hotels, the plan is adopted of making a very strong decoction, and boiling it slowly till it is concentrated to the colour and almost the thickness of treacle. This is, in fact, very similar to the essence of coffee sold in this country, except that it is made of genuine coffee, without chicory, and liquorice, which is not often the case here. In making it the aroma is lost, in great measure, but the raw flavour of the coffee, so much complained of by many people, is likewise got rid of. In an old French hotel, where I stayed in Paris, twenty-four years ago, the coffee was thus made, and occupied twenty-four hours in its preparation; one day's consumption being, in fact, always on the fire

in separate vessels. For mixing with large quantities of milk, this is particularly agreeable to the palate, but not for the ordinary coffee as taken in this country.

787. Infused Coffee merely requires a machine with a strainer perforated with fine holes, and when this is provided it matters not whether the water finds its way out by the force of gravity or by the power of the human arm. The machine should always be previously warmed, and if the infusion is made by two separate mashes, as in brewing beer, it will help to extract all the goodness better. For those who like the raw taste of the berry this plan is the best, especially as it does not allow the evaporation of the aroma; but among them I confess that I do not rank myself, as the disagreeables more than counterbalance the agreeables. The machines devised for making coffee in this way are almost as numerous as the days of the year; and I am not aware of any one very superior to its competitors, the common coffee-filter (*fig.* 104) being the most simple, and costing in block-tin about four to five shillings.

788. All the above Preparations of coffee are either taken plain or sweetened with sugar, or syrup, or sugar-candy, and with boiled milk or cream, or both. If the first is used, the patent sugar is the best for the purpose.

Cocoa.

789. Cocoa is prepared according to the different form in which it is to be used. Its powers are less exciting and stimulating than tea or coffee, though it contains a certain proportion of the same principle (see par. 207). If *cocoa-nibs* or *flake-cocoa* are to be prepared, they require boiling slowly for two or three hours, half an ounce being sufficient for a pint and a half of water. The various *prepared cocoas* sold in tins, as Fry's, the Soluble, &c., are made by mixing a teaspoonful and a half in a little boiling water till dissolved, adding sugar to the palate, and then filling up with boiled milk.

Chocolate.

790. Chocolate requires for its proper preparation a muller, which is a part of the chocolate pot. The handle comes through the lid, and is rotated rapidly between the open palms. Scrape one ounce or two of the chocolate cake, and put it in with an ounce of sugar, over which half a pint of boiling water is to be poured, then put on the fire and turn the muller with one hand till it boils up, when an equal

quantity of hot milk is to be added, and the whole well mulled with both hands on a stove or hot plate. When sufficiently frothy (or mulled) serve.

Sect. 2.—Cooling Beverages.

791. The following list of cooling drinks are all simply of the above character, and are all wholesome enough when taken in moderate quantities. They have no other effect upon the system, except soda and potash-water, which should contain a small proportion of alkali, and therefore to act as anti-acids. On the other hand, imperial contains a slight excess of acid, and the supertartrate of potash is a diuretic, so that it has a considerable weakening effect upon those whose kidneys are easily acted on. Lemonade also contains a free acid, but this has no great effect upon the secreting organs. But these are too often flavoured with ethereal compounds instead of the genuine fruits. Nevertheless, in some cases pure syrups may be purchased at prices very little above what they would cost if made at home.

792. In point of economy, when made at home, they will be found to cost very little less than the prices sometimes charged for the articles when made from essences as sold by the public dealers. This will be rendered evident by an examination of the annexed list of prices charged by Mr. Sainsbury, of the Strand, whose productions are so well known for their genuineness and flavour, as to need no comment here. They are as follows:—

Sainsbury's Fruit Essences.

	Pint.	½-pint.	¼-pint.
	s. d.	s. d.	s. d.
Essence of lemonade, with or without ginger	2 6	1 4	0 10
Raspberry, orange, currant, cherry, and apple essences	3 6	1 10	1 0
Foreign pine-apple and mulberry	5 0	2 6	1 6

A table-spoonful to a tumblerful of water makes a beverage adapted to be drunk either still, or mixed with the powders mentioned in the next paragraph, or carbonated by means of the gazogene. (See par. 807.)

Lemonade.

793. Pare two dozen of tolerably sized lemons as thin as possible, put eight of the rinds into six quarts of hot, not boiling, water, and cover it over three or four hours. Rub some fine sugar on the lemons to absorb the essence, and put it into a china bowl, into which squeeze

the juice of the lemons. To this add one pound and a half of fine sugar, and when cool it is fit to drink.

Another.—Pare six lemons very thin, pour on the peel a quart of boiling water, when cold add the juice of twelve lemons, four oranges, and another quart of *cold* water. Sweeten with two pounds of loaf sugar, and strain it through a bag. It may be made less expensively by substituting cream of tartar for some of the lemon-juice, allowing a quarter of an ounce for each lemon.

Very good Lemonade.—Take the peel of eight lemons, the juice of twelve, and of four oranges, with one ounce of cream of tartar, and two pounds of lump sugar. Pour upon these ingredients six quarts of hot (not boiling) water, when cold, strain it through a sieve, and it will be fit for use. A little sherry is an improvement.

Excellent Lemonade.—Put the juice of six lemons, the rinds of two, and a bottle of white wine, into an earthen vessel; add two quarts of boiling water, and loaf sugar to your taste; cover it up until cold, then two quarts of boiling milk must be poured into the whole, which, when cleared through a flannel bag will be perfectly transparent. It is better made two days before it is wanted, and it keeps well for a week.

Orangeade.

794. Squeeze the juice from a dozen of the fruit; pour boiling water on the peel of four, and cover close. Boil water and sugar to a thin syrup, and skim it. When all are cold, mix the juice, the infusion, and the syrup, with as much more water as will make a rich sherbet; strain through a jelly-bag, and cool.

Cranberry Water.

795. Bruise a cupful of cranberries, mixed with a cupful of cold water. Boil two quarts of water with a table-spoonful of oatmeal and the rind of a lemon; then stir in the cranberries, and add two ounces of Lisbon sugar, and a quarter of a pint of white wine; simmer for a quarter of an hour; then strain and leave to cool.

Raspberry Vinegar and Water.

796. No draught is more agreeable to a feverish patient than a dessert-spoonful of raspberry vinegar mixed in a tumbler of cold water. It should never stand in any metal or glazed vessel, for the acid would act upon their surfaces to an injurious extent.

Rhubarb Sherbet (a Refreshing Drink).

797. Boil six or eight sticks of clean rhubarb ten minutes, in a quart of water; strain the liquor into a jug, in which is the peel of a lemon cut very thin, and two table-spoonfuls of clarified sugar; let it stand five or six hours, and it is fit to drink.

Apple Water.

798. Cut two large apples in slices, and pour a quart of boiling water on them, or on the same roasted; strain two or three hours after, and sweeten lightly.

Imperial.

799. Scald a jug, and put in it from a quarter to half an ounce of cream of tartar; then add a quart of boiling water, flavour it with a little lemon peel, or essence of lemon, and sweeten to the palate.

To Make Imperial Water Effervescent.

800. Let one ounce of cream of tartar, half a pound of loaf sugar, one lemon, and one gallon of water be boiled together five minutes. When nearly cool, put in a little barm spread on toasted bread; let it stand thirty-six hours, and then bottle. Soak the corks in warm water, and tie them down. It will be fit for use in three days.

Concentrated Lemonade.

801. Take one drachm of essence of lemon, one and a half ounce of citric acid, two and a half pounds of loaf sugar, and one pint of water. To make the syrup, put the sugar into the water when cold, and let it boil gradually, then pour it hot on the acids. To make the beverage, put a table-spoonful of the lemonade into a tumbler of water.

Vinegar and Lemon Whey.

802. Pour very gradually into boiling milk as much vinegar or lemon juice as will serve to curdle it; dilute with hot water to an agreeable smart acid taste, and put in a bit or two of sugar. This is less heating than if made with wine; and if only to excite perspiration, answers as well.

Ginger Beer.

803. Put into a large pan two pounds of loaf sugar, two ounces of

bruised ginger, and two gallons of cold water. Boil the whole for half an hour, skimming it well, then pour out into a large earthenware jar, adding a lemon sliced, and half an ounce of cream of tartar. Let it cool to new milk heat, then add a teacupful of yeast, and allow it to ferment for two days; strain it, and bottle in small stone bottles, with the corks firmly tied down.

Another Receipt.—To each gallon of water, add one and a half pound of loaf sugar, and one and a half ounce of ginger well powdered; and put into a muslin bag, to prevent its being skimmed off. Boil these together for half an hour, skim frequently, and when nearly cold, put the juice and rind of two lemons to each gallon; adding a small quantity of yeast upon toast to it as soon as quite cold. Let it remain for four days, then put the *whole* in a cask, with some white of eggs or isinglass to fine it. Let it remain in the barrel ten days, then bottle it, and in ten days more it will be fit for use.

Excellent Ginger Beer.—Take a good quarter of an ounce of best *powdered* ginger, half an ounce of cream of tartar, the juice of two lemons, the peel of one, one and a quarter pound of lump sugar. Pour on these ingredients one gallon of boiling water; mix well together. Let it stand till lukewarm; put a table-spoonful of yeast on a toast, and place it *on* the liquor; it will ferment over. Next morning, skim or strain, and bottle it. It will be fit for use in three days.

Currant Water.

804. Currant Water is made by dissolving a small table-spoonful of currant jelly in a tumbler of water, and adding from ten to fifteen grains of tartaric acid. Any other fruit jelly may be converted into a refreshing drink in the same way.

Black Currant Drink.

805. Scald out a glass, then put into it two or three spoonfuls of black currant jelly or preserve. Add a little boiling water and stir up the jelly, then fill with more water and drink as hot as possible. Useful for common coughs and hoarseness.

Carbonated Waters.

806. Carbonated Waters are made in two different methods, by the former of which the carbonic acid alone is forced into the liquid, while, by the latter, the salts from which it has been evolved are also contained within it. In the one case a machine of some kind is required,

in which the gas is generated, and from which it passes into the liquid to be acted on. On the large scale, and when intended to manufacture beverages for sale, these machines are cumbrous and expensive; but for private use they are now made on a simple construction, the invention of a Frenchman, and are universally to be met with under the name of *gazogenes*. Carbonic acid gas is produced by the addition of any acid to any carbonate which has a greater affinity to it than to carbonic acid; and, as a consequence, discards its old love for the sake of its new. By the usual domestic methods, carbonate of soda or potash and citric or tartaric acid are mixed together in water, and immediately evolve the carbonic acid gas, leaving in the solution a tartrate or citrate of soda or potash. Under ordinary circumstances, and for occasional use, there is no objection to this salt; and in some cases, where it is given medicinally, it is cooling and useful; but when frequently taken, it is lowering and debilitating to the stomach, and therefore the use of the machine is far preferable, particularly as the expense is exactly the same after its prime cost has been paid, the same powders, namely, carbonate of soda and tartaric acid, being used in either case.

807. The Gazogene consists of two glass vessels (*fig.* 102, A B); one of these (A) has a metal tube (C), which fits into its neck so as to be water-tight at the joint, and rises nearly to the top of the upper vessel (B), from which, also, is a cock (D). In order to use it, the two powders (bicarbonate of soda and tartaric acid) are placed *dry* in the lower vessel (A) by removing the metal tube (C), which is then replaced, and firmly pushed down into its socket. The upper vessel (B) being now turned with its mouth upwards, is filled to *the top of the glass part*, with the water or other fluid to be rendered effervescent. After this, the lower part (A), as previously charged, is turned down into the vessel (B), and the two while in this position are securely screwed together. When this is done, they are turned up to their original position, immediately on which being done, a little of the fluid flows over the top of the tube (C), and runs down into the vessel (A), where it mixes with the two powders, and causes the one to decompose the other, and thus liberate the carbonic acid gas, which is done with considerable force, so as to rise through the tube (C) and enter the fluid in the vessel (B), which becomes charged with it, and when let out by the tap or cock (D) is highly effervescent. This machine, if well made, and especially if gilt, will produce *soda* or *potash-water*, *lemonade*, *orangeade*, *ginger beer*, *currant water*, or any other

flavoured beverage in a state of effervescence. In order to obtain any of them, the following directions are necessary, in addition to the use of the machine and the powders sold with it. The cost of the former article is from £1 to £1 15s., or, when highly ornamented, a still higher price. The soda and acid powders are sold at 2s. to 2s. 6d the dozen of each, but they may be made at home at about half that price —one pound of soda and twelve ounces of tartaric acid being sufficient for twenty powders.

Soda or Potash-water.

808. Fill the vessel (B) of the machine with pure water, in which have been dissolved from six to twelve grains of bicarbonate of soda or subcarbonate of potash. Then attach the other as already described, and use in an hour or two.

For Ginger Beer.

809. Mix with half a pint of water and an ounce and a half of sugar (brown or white) from half a drachm to a drachm of powdered ginger; pour this into the vessel, and fill up with water, after which proceed as before.

810. In order to act on lemonade, currant-water, or any other beverage, first make them according to any of the receipts at pages 330-332, or dissolve their syrup; then put it in the vessel (B) and attach as in par. 807. In about an hour and a half it may be used by turning the cock (D).

811. Effervescing Waters are made extemporaneously by adding to twenty grains of bicarbonate of soda (or potash) fifteen grains of citric (or tartaric) acid; about half a tea-spoonful of coarsely powdered white sugar or a tea-spoonful of syrup may be added, and, if desired, two or three drops of essence of lemon. The soda with either of the acids makes soda-water; the potash, potash-water; and the addition of the lemon and sugar converts it into effervescing lemonade. If ginger-beer is desired, it is only necessary to add about ten grains of powdered ginger instead of the lemon essence. A table-spoonful of lemon-juice (obtained from half a lemon on the average) is equal to fifteen grains of the citric acid, and may be substituted for it and the essence with advantage. The method of proceeding in each case is as follows:—Dissolve the soda (or potash) in a wine-glassful of water with the sugar or syrup, and the essence of lemon or ginger where they are used; then dissolve the acid in an equal quantity of water

(or squeeze the lemon) in another glass; pour the two together, and give *immediately*, as the effervescence soon goes off.

812. For Invalid Drinks, see the Remarks on the Management of the Sick-room.

813. Iced Beverages are made by the addition of ice to other materials, by which their flavour is rendered more grateful to the palate. Clean and pure ice is necessary for the purpose, such as that sold by the Wenham Lake Company, for full particulars of which see the subsection which treats of the preservation of food by ice. The following receipts are those which can be recommended:—

To Make a Sherry Cobbler.

814. Reduce the ice into flakes by means of an ice-plane, or pound a quantity of ice quite fine in a coarse cloth, by beating it with a mallet; half fill a large tumbler with this powdered ice; add one or two teaspoonfuls of powdered sugar, the rind of half a lemon, and one or two glasses of sherry; stir them well together, and drink through a small glass tube or a straw.

Mint Julep.

815. Take three or four young sprigs of mint, fresh gathered, and put in a tumbler; half fill it with sherry; put some pounded ice in a second tumbler, and pour the mint and sherry over it, rapidly transferring the liquor several times from one tumbler to another, finally place the tumbler for a minute or two in ice, till the frozen particles form over the top.

Iced Water.

816. This merely requires a lump or two of clear ice (Wenham Lake is the best) to be put into fine spring water, which will be kept at the temperature of thirty-two degrees as long as any ice remains unthawed.

CHAPTER X.—VEGETABLES AND FRUIT.

817. Remarks.—The full consideration of this subject would embrace a very large field, inasmuch as for its due examination the whole range of gardening operations must be inquired into, which would demand a space almost equal to this whole book, and would therefore be manifestly out of place. All, however, which seems likely to

be useful, is an inquiry into the *cost* of vegetables and fruit when produced in the garden or hot-house of the private individual. Sometimes, it is true, that he has no choice, and must either grow his own vegetables or go without them; but this is only the case in retired villages, or very small towns, as in almost all collections of people in any numbers, vegetables are to be met with in sufficient quantities and of tolerably good quality. The rent of the garden is seldom a matter for calculation, as it is generally attached to the house, and cannot then be well separated from it. If, however, a garden is to be paid for, it makes the cost by so much the higher. When the owner undertakes the labours of a garden, or even the superintendence of it, its produce may certainly be considered nearly all profit; but if this is not the case, especially when the master has no knowledge of gardening, the produce will be small and of a bad character, and the cost will be enormous. Let any housekeeper calculate what her vegetables and fruit cost her, independently of potatoes, and she will find that, on an average, 6d. a day will pay for them in most families where economy is practised, and 1d. per day will suffice to pay for them where money is an object. But let us allow 3d. a day for vegetables and the same amount for fruit, and then let us examine the cost of each when produced in the proprietor's garden.

Sect. 1.—Cost of Vegetables.

818. In order to have a regular supply of these articles, unless the work is done by the master of the house, a gardener must be hired for about forty days in the year, at 2s. 6d. per day on the average, which, in addition to the cost for seeds, will bring this item up to about £6 per annum, or nearly 2s. 4d. per week. So that in this calculation there will be a loss of 7d. per week, only balanced by the surplus amount of cabbages, &c., which will go towards feeding a pig, and in that way pay for the manure. If, however, a pig is not kept, or rent must be paid for the garden, there will then be a correspondingly increased loss. The above calculation does not include the charge for the cultivation of a flower garden, but solely for that employed in producing vegetables, exclusive of potatoes. When these last can be grown—that is, where there is ground calculated for them, which is not very often the case in old kitchen gardens—they may be cultivated at a great profit (barring the disease to which they have of late years been subject). These roots, however, require a fresh or virgin

soil, or, at all events, one of a light and loamy nature, and not the old black soil which is so common in garden ground.

Sect. 2.—Common Fruits.

819. Very little labour is required for the ordinary fruits grown in the open air; a few days' pruning being all that is necessary. We have therefore to set against an expenditure of 3d. per day, or £4 10s. per year, very little more than the 10s. 6d. for three and a half days' labour, in pruning and gathering the fruit. As a consequence, therefore, it may be considered that where a garden is attached to the house, with plenty of fruit, a saving to the amount of £4 may be calculated on; or, if rented, that the above sum may be prudently paid, and if any surplus fruit is sold, that also is a clear gain.

Sect. 3.—Forced Fruits.

820. As these may in all cases be considered luxuries, and neither necessary nor desirable as articles of food, the entire outlay in their production is an extravagance, and to be reckoned as such without any counterbalancing advantage in an economical point of view. When, however, the master has a strong partiality for gardening, and himself superintends this department, it is possible to cultivate forced fruits and sell them at a considerable profit; but this can scarcely be considered as a saving in the management of a family, but rather as a trade of itself. It is therefore quite unnecessary to enlarge upon it here, though I am quite aware that, when well carried out, a garden may be made to pay a good round sum by the sale of its forced produce in the nearest good market, as well as to afford plenty of vegetables and fruit to the house.

CHAP. XI.—PRESERVATION BY SUGAR, SPIRIT, VINEGAR, SALT, ICE, &c.

821. Remarks.—Under this head are included the usual methods of preserving animal and vegetable substances, *with as little alteration of flavour as possible.* The means employed are various, but in every case the object is to avoid interfering with the original and peculiar flavour of the substance to be preserved, and at the same time they differ from cookery in one respect, namely, that they enable the article so preserved to be kept for a shorter or longer time before it is

used, when in most cases it requires some further kind of cookery. From this description it will be apparent that the articles here named, with very few exceptions, should be kept in store, and are only thus prepared because they cannot at all times be obtained, and yet it is desirable to have them at command. The exceptions to this definition are only plain-salted meat, which is not generally kept, and iced creams and water, which do not keep long.

822. The heads under which these articles are divided, are—1st, *sugar preserves;* 2nd, *bottling;* 3rd, *preserving in spirit* or *wine;* 4th, *in ice;* 5th, *by sulting;* 6th, *in vinegar;* 7th, *by distillation,* and 8th, *by drying.*

Sect. 1.—Preserving with Sugar.

823. For this purpose, one or more preserving pans are required, made with a cover to fit tightly, and a handle on each side. Where large as well as small quantities are made, a quart and a four quart preserving-pan will suffice. They are generally made of copper or brass, on the supposition that the boiling prevents the acid in the fruit from acting on the metal, but this is a great mistake, and has led to serious results. The safest metal is block-tin, or doubly-galvanized iron; but these are apt to injure the colour of the preserves, which is avoided by the use of the modern enamelled iron pans though they require watching, as they are apt to burn. Besides these, several wooden spoons, hair sieves, and other strainers will be required; and for jellies a large bag of flannel, made in the shape of a fool's cap, and about two feet deep. It should be strained to a small wooden hoop, and suspended by three cords.

824. All Fruits should be gathered in a perfectly dry state, free from dew or rain, and if possible, from dust. The wooden spoons, hair sieves, and strainers used in making preserves, should be kept entirely for that purpose; and in this as well as in every other operation of cookery, the most scrupulous cleanliness is necessary for success.

Quality and Quantity of Sugar, and Time of Boiling.

825. In order that the preserves shall have a good flavour it is better to use the best refined sugar; the difference in the expense is not great, and there is much less scum, or waste, than in moist sugar. Nevertheless, in cheap useful preserves for children, which are meant to be eaten immediately, the common moist sugar may be advantageously

used. It is necessary to observe, that the boiling of sugar, more or less, constitutes the principal art of the confectioner; and those who are not practised in this knowledge, and only preserve in a plain way for family use, are not aware that in two or three minutes, a syrup over the fire will pass from one gradation to another, called, by confectioners, "degrees of boiling," of which there are six, and these subdivided. It is very necessary, therefore, to guard against under-boiling, which prevents sweetmeats from keeping; or from quick and *long boiling* which brings them to a candy. It is better, therefore, to hang the preserving-pan on a hook, at some height above the fire, if an open one, that there may be no danger of burning the fruit; but if there is a hot-plate, there will be no difficulty experienced. After the sugar is added, stir gently, but continually, till the preserve is made, carefully clearing away the scum as it rises. It is advisable to boil all fruits for jellies and jams at least twenty minutes before the sugar is added, that the watery particles may evaporate; and when this is done a less portion of sugar is required. The sugar should be used in large lumps, *not powdered*, and should always be heated in an oven, or before the fire, previously to adding it to the fruit. Jellies of fruit made with an equal quantity of sugar (that is, a pound to a pint) require no very long boiling. Attention, without much practice, will enable a person to do any of the following sorts of preserves, sweetmeats, &c.; and they are as much as will be wanted in a private family. The higher kinds of preserved fruits may be bought at less expense than they can be made.

826. This varies greatly, as will be seen in the following receipts. The old fashion of equal weights of fruit and sugar is only required in very acid fruits.

JELLIES.

827. Jellies are made by boiling fruit with sugar, and then straining it through a flannel jelly-bag, or, as is sometimes done, through a fine hair sieve. By many people a little isinglass is added, but this is not always *necessary*, though it adds greatly to the stiffness of the jelly. They should be cooled quickly, and kept in a dry but cool place.

TO CLARIFY SUGAR AND CANDY FRUIT.

828. Sugar should not be powdered before making into syrup, or it will render it turbid. Break as much as will be required in large lumps;

put a pound to half a pint of water, in a bowl, and it will dissolve better than when broken small. Set it over the fire, with the well-whipped white of an egg; let it boil up, and when ready to run over pour a little cold water in to give it a check; but when it rises a second time, take it off the fire, and set it by in the pan for a quarter of an hour, during which the foulness will sink to the bottom and leave a black scum on the top, which take off gently with a skimmer, and pour the syrup into a vessel very quickly from the sediment. When refined sugar is used for making syrup it need only be melted over the fire in a quarter or, at most, one-third its weight of water; and as this evaporates, the syrup must be taken up with a large slice, and let to fall again, upon which, if it forms a broad sheet as it falls, it is said to be boiled "to a candy height." If it has not been boiled quite so far, or the water has been in greater quantity, the sheet is formed but imperfectly, and the syrup is said to be at a "weak candy height." If in shaking the slice of syrup when in this state, it runs over in the form of the feathers of a quill, or drops like pearls into water, falling to the bottom in solid and brittle globules, it is said to be at a "full candy height;" and if in that state it is stirred till cold it forms a dry powdery mass. For adding to preserved fruits, the syrup is boiled to a *weak candy height*, and poured hot upon the fruit; the juice of the fruit, of course, weakens the syrup, which must, therefore, the next day be poured off the fruit and reboiled to the weak candy height, and then poured on again; this must be repeated again and again if the fruit is very juicy. To preserve fruits for candying or drying, the syrup must be used of the full candy height, and half cold; and it should be boiled up again as above if the fruit is extremely juicy, until it is supposed that the syrup is no longer weakened, when the fruit is taken out and drained.

829. To Candy any sort of Fruit.—When finished in the syrup, put a layer of the fruit into a new sieve, and dip it suddenly into hot water, to take off the syrup that hangs about it; then put it on a napkin before the fire to drain, and do some more in the sieve. Have ready sifted double-refined sugar, which sift over the fruit on all sides till quite white. Set it in a single layer on sieves in a lightly warm oven, and turn it two or three times. It must not be allowed to be cold till dry. Watch it carefully, and it will have a beautiful appearance. When any sweetmeats are directed to be dried in the sun or in a stove, it will be best in private families where there is not a regular stove for the purpose, to put them in the sun on flagstones which

reflect the heat, and place a garden glass over them to keep insects off; or, if put into an oven, to take care not to let it be too warm, and watch that they are done properly and slowly.

To Keep Preserves and Sweetmeats.

830. They should be protected carefully from the changes in the outer air, and in a very dry place, for which purpose a dry cupboard with wire panels and gauze to keep out the dust, is the best calculated. Unless they have a very small proportion of sugar, a warm place does not hurt; but when not properly boiled—that is, long enough, but not sufficiently quick, heat makes them ferment, and damp causes them to grow mouldy. They should be looked at two or three times in the first two months, that they may be gently boiled again, if not likely to keep. To make quite sure of their keeping well, or to send abroad, while they are boiling and before they are finished, pour in a wine-glass of brandy to each quart of preserves, and give them one boil, then pour the preserves into a jug before putting them in pots.

Tying down Preserves.

831. The great point is to exclude the air, though, somewhat paradoxically, they do not keep well in closets which are too closely shut up, apparently from the encouragement which it affords to the growth of mould. This exclusion is by no means so easy as may be supposed, for bladder, though apparently air-tight, is not really so, and especially as generally applied—that is quite fresh, and not half soaked. Paper smeared with white of egg is much more secure than the above material, and answers well enough for all common preserves. In order to secure these articles with as much certainty as possible, proceed in any of the annexed modes—*the second being the best.*

832. The old-fashioned method is to cut a piece of writing-paper exactly the size of the jar, soak it in brandy, then lay it smoothly on the top of the preserve, and tie down over the neck with bladder. This answers very well if the bladder is soaked in water for two days, and its *internal* or *smooth* surface is placed inwards.

833. Instead of dipping the round of paper in brandy, dip it in white of egg; or omit it altogether, and press down carefully over the jar a piece of silver paper, well smeared with white of egg, cutting the paper an inch larger than the jar, and pressing it well down the sides with the fingers. This is very effectual and *clean.*

834. Melt some fresh mutton-suet, and when nearly setting, pour it

over the preserve until it is about a quarter of an inch in thickness, taking care not to grease the edge of the jar. When cold, tie down either with brown paper or bladder, or with the egged-paper (see 832 and 833).

835. In bottled fruits, &c., bladder, *well* soaked, is the best covering; and when extra precaution is required, after it is quite dry, dip the whole of the bladder, and beyond its edge, in melted resin and bees-wax, prepared as follows:—

Bees-wax, quarter of pound.
Common resin, one pound.
Red lead, one oz.

Melt the two first together, then stir in the lead, and continue stirring till it begins to get thick from cooling; then dip the bottles, turning them up quick.

836. In a good keeping-place the preserves keep as well without any other cover than the round piece of paper, which dipped in vinegar prevents the preserves from becoming musty, that is, like cheese; which they will do in some situations, and this plan of putting no bladder or paper over the jars, enables the housekeeper to examine without trouble the state of her preserves from time to time.

RECEIPTS FOR SUGAR PRESERVES.

To Preserve Rhubarb.

837. To every twelve pounds of fruit, peeled and cut as for tarts, put the same weight of lump sugar, a quarter of a pound of bitter almonds blanched and pounded, the juice of a lemon and the peel chopped fine. After putting the sugar to the rhubarb let it stand through the night, then boil it; when it begins to thicken add the other ingredients, together with a wine-glass and a half of pale French brandy. A tea-spoonful of ginger is thought by some people to be an improvement; others omit the almonds, lemon, and brandy.

To Preserve Strawberries.

838. To one pound of fruit add three-quarters of a pound of sugar; pound it fine and strew it over the fruit, and let it stand twenty-four hours, then set it over a slow fire till the sugar is dissolved; take it off and let it stand till cold; make it hot three or four times, leaving it to get cold each time; when the syrup is quite clear, put the whole into jars or glasses.

Raspberry Jam.

839. Weigh the fruit, and add three-quarters of the weight of sugar; put the former into a preserving-pan, boil and break it, stir constantly, and let it boil very quickly; when the juice has boiled an hour, add the sugar, and simmer half an hour. In this way the jam is greatly superior in colour and flavour to that which is made by putting the sugar in at first.

Gooseberry Jam (Three Sorts).

840. For common *red jam*, put twelve pounds of red hairy gooseberries, gathered dry and ripe, and picked clean, into a preserving-pan, with a pint of currant juice. Let them boil, and beat them with a wooden spoon till they break; then add six pounds of Lisbon or lump sugar, and simmer slowly twenty or thirty minutes. Gooseberries require long boiling, but make a good and cheap jam, which generally keep well, and answer for children's use.—In making *green gooseberry jam*, it is usual to add a little spinach juice instead of the currant juice, and to use a double portion of white sugar. (Excellent for puddings at all times.)—In *white gooseberry jam*, the finest ripe white gooseberries must be gathered and picked, the fruit put into a jar, in a pan of water over the fire till they break, and then transferred to the preserving-pan, with three-quarters of a pound of sugar to each pound of gooseberries; they will require half an hour's boiling before the sugar is added, to reduce them to jam.

Red or White Currant Jam.

841. Let the fruit be very ripe, pick it clean from the stalks, bruise it, and to every pound put three-quarters of a pound of loaf sugar; stir it well, and boil half an hour, then add the sugar, boil and skim.

Black Currant Jam.

842. To every pound of black currants add the proportion of a pound and a quarter of sugar, made into a syrup with half a pint of water; boil the fruit half an hour before adding the syrup, and a quarter of an hour after. This is one of the most useful, wholesome, and delicious jams that can be made.—*Or*, this preserve may be improved by adding to four pounds of black currants one pound of white and one pound of red currants, and then proceeding to boil, *without water*, and adding the sugar in the proportion fixed above.

Green Currant Jam.

843. Weigh equal portions of unripe red currants and sugar, set the fruit over the fire, at some distance, with a small part of the sugar, breaking the fruit a little that the juice may prevent it burning; stir it continually, and let it remain for a quarter of an hour, then add the rest of the sugar, and boil up for a quarter of an hour longer.

Blackberry Jam.

844. The common blackberry (growing wild in great plenty in most parts of England) requires to be gathered ripe and dry, to be carefully picked, boiled for half an hour, and then half the weight of moist sugar added and boiled up again for ten minutes. It is a most wholesome preserve for children.

A Mixed Plum Jam.

845. Take apricots, greengages, or any kind of plums, divide them, take out the stones, simmer over the fire for half an hour, then add half the weight of the fruit in loaf sugar and boil a quarter of an hour. To this jam cherries, apples, or any other common fruit may be added

Mixed Preserve for Children.

846. Take raspberries, red currants and white currants, in any quantities which are left, or gooseberries and black currants in equal quantities; boil them together for twenty minutes or half an hour, according to their weight; then common moist sugar, dried and heated before the fire, must be added in the proportion of three-quarters of a pound to each pound of fruit, and boiled five minutes longer.

Carrot Jam.

847. Boil some carrots till quite tender, and rub them through a sieve. To one pound of the pulp add three quarters of a pound of loaf sugar; boil it to a jam, and when nearly cold add the juice and grated rind of two lemons, and half a tea-spoonful of essence of cloves or nutmegs. This jam is not very good, as compared with some others, but for children it is better than nothing, and very wholesome.

Greengage Jam.

848. Peel the fruit and divide, take out the stones, and blanch the

kernels if you wish them added to the jam. Boil the broken stones and parings in a little water till the water is half reduced, and add a little spinach juice to colour it; then strain it and put in the preserving-pan with the fruit. Simmer a quarter of an hour, then add equal weight of sugar, boil and skim for twenty minutes longer.

Preserved Greengages.

849. Select greengages full grown, but not the least ripe; prick them with a fork to the stone four or five times, and as soon as pricked put them in water in a preserving-pan; when they are all done, put them over a slow fire to simmer very gently, so as to make them tender without breaking; try them with a fork, and when tender to the stone put them in cold water, and, as some will get soft before others, they must be watched carefully. Let them lie in water a day and night; strain them, and when well drained, put them in an earthen pan, and pour over some boiling hot clarified sugar, sufficient to well cover them (see par 828). Put a paper over them, the next day pour off the syrup and boil it; if three quarts, or thereabouts, boil for ten minutes; then pour it over the fruit, and again lay the paper over them. Boil the syrup every other day in the same manner, until it is about the consistence of cream (in five or six times boiling). If the syrup shrinks, so as not to keep the fruit well covered, add a fresh supply. While boiling the syrup the third time, put the greengages in, and let them simmer gently for a short time, which will bring them green; and the last time of boiling the syrup also let them simmer a little in it.

Green Apricots.

850. Take those the size of a nutmeg, and simmer in water till tender; then put them in cold water, and next day drain, and proceed as with greengages (see 849).

To Preserve Apricots Whole.

851. Take ripe apricots, slit them at the top, and with a small stick, put in at the stalk end, force out the stone, then peel them, and let them simmer gently in a preserving-pan with water till tender, but not so much so as to break. Put them into cold water, and the next day drain them on a coarse sieve for four or five hours; then put them on a flat earthen pan so as not to lay them one on the other more than can be helped; proceed as with greengages (see 849). *Or*, take the

largest and cleanest apricots to be got. Pick out the stones with a silver skewer, or slit them down the sides with a silver knife. Take nearly their weight in good lump sugar; dip each lump in water, and put over the fire; let it just boil, skim, and put by till cold. Then pour it over the fruit in the preserving-pan, warm very gently, and only allow them to simmer; then put them by till next day, and warm them again, continuing this till they look clear. Then take the fruit from the syrup. The latter must now be well boiled and skimmed, and when cold poured over the fruit.

To Preserve Cucumbers.

852. Select small cucumbers, or larger ones as green and free from seeds as possible, put them into strong salt and water in a narrow-mouthed jar, with a cabbage-leaf to keep them down. Tie a paper over them, and set them in a warm place till mellow. Wash and set them over the fire in fresh water with a little salt and a fresh leaf over them. Cover close, and do not let them boil; if they are not a fine green, change the water, and again make them hot and cover them as before. When they are of a good green, take them off; let them stand till cold. Cut the large cucumbers in quarters, take out the seeds and soft part, put them all into cold water for two days, changing it twice each day to take out the salt. Make a syrup of one pound of loaf sugar to half a pint of water; skim, and when clear, add the rind of a lemon, and one ounce of raw ginger, with the outside scraped off. When the syrup is pretty thick, take it off, and when cold put in the cucumbers, having wiped them dry. Boil the syrup once in two or three weeks; repeating this three times (see par. 828), and strengthen it, for the danger of spoiling is at first. The syrup must be quite cold when it is put to the cucumbers.

To Preserve Siberian or American Crabs.

853. To one pound of crabs, take a pound of fine sugar, the juice of a lemon, and a little syrup from common apples. Dissolve the sugar in it; let it boil, and skim clear; then prick the crabs, and put them into the syrup. Let them boil gently, till a straw will run through them. Put them into pots and cover well with syrup.

To Preserve Strawberries Whole.

854. Take the weight in double-refined sugar, with a quarter of a pint of water to each pound, and boil to a thick syrup. When cold,

put in the strawberries, and let them stand a night. Drain them, and boil the syrup up again three times, which will thicken it. Put the strawberries in *cold*. Put them in glasses, over which tie paper, and let them stand in a cold place.

To Preserve Greengages Whole.

855. Prick them all over with a pin, then put them in scalding water, let them simmer, strain them, and take their weight in sugar; put the sugar into the preserving-pan, with a quarter of its bulk of water; let it boil well and skim very clear; put in the plums, let them boil up once, take them off, and set them by till next day; then take them out one by one from the syrup, boil it, and skim very clear; put in the plums, and let them boil very gently for twenty minutes; take them off as before, let them stand till cold, then put them into the jars, tying them up very close.

Preserved Grapes in Bunches.

856. Take out the stones from the grapes with a pin, breaking them as little as possible; boil some clarified sugar nearly to "candy height," (see par. 828); then put in sufficient grapes to cover the bottom of the preserving-pan, without laying them on each other, and boil for five minutes, merely to extract all the juice; lay them in an earthen-pan, and pour the syrup over them; cover with paper, and the next day boil the syrup, skimming it well for five minutes; put in the grapes, let them boil a minute or two; put them in pots, and pour the syrup over them, after which tie down.

To Preserve Pine-apples.

857. Gather the pines with small tops, or, if foreign fruit, select in the same way; then with a sharp knife take out the little prickly leaves between each flake, but be careful not to go too near the top; put them into salt and water a little warm, to make them turn yellow, which will be in about twenty-four hours; then place them on a slow fire in water and lemon-juice, composed of three parts of the former to one of the latter; do not keep them too long on the fire, for fear of losing the top; when they are done put them in cold water; then take them out and let them be thoroughly dried; put a good rich syrup to them, which must be changed for fresh syrup two or three days afterwards (see par. 828). This is a West India receipt.

Quinces Preserved Whole.

858. Pare and put them into a saucepan with the parings at the top. then fill it with hard-water, cover it close, set it over a gentle fire till they turn reddish; let them stand till cold, put them into a clear thick syrup, boil them a few minutes; set them on one side till quite cold, boil them again in the same manner; the next day boil them till they look clear, if the syrup is not thick enough, boil it more; when cold, put brandied paper over them. The quinces may be halved or quartered.

To Preserve Melon like Ginger.

859. When the melon is nearly ripe, pare it thin, and cut it into pieces about the size of ginger; cover it with salt-water, changing it every day for three days; then put it in clear spring-water, changing it twice a day for three days. Then make a thin syrup, and boil it together with the melon once every day for three times. Next make a thick syrup, adding the rind of one or more lemons, according to the quantity of melon, cut into narrow strips, and the juice squeezed in. Then add some best white ginger, with the outside cut off, so as to make the syrup strong of the ginger. This should be boiled, and when cold put to the melon.

To Preserve Red Currants in Bunches.

860. Stone the currants, and tie six or seven bunches together with a thread to a piece of split deal about the length of your finger; weigh the currants after stoning them, and put their weight in double-refined sugar in a preserving-pan with a little water, and boil it till the sugar is dissolved; then put the currants in, and give them a boil up; leave them covered till the following day; then take them out, and either dry them or put them in pots with the syrup boiled up with the addition of a little red currant juice. Put vinegar or brandy papers over them, and keep in a dry airy place. White currants may be done as above, with the addition of some clear apple juice and the juice of a lemon, to be boiled at first with the sugar. In both cases, the syrup should form a *jelly* round the currants.

To Preserve Lemons Whole.

861. Take six lemons and rasp the outsides, then put them into cold spring-water over the fire; let them boil a little while, change the

water and let them boil again a quarter of an hour; then take them out of the water and drain them well. Put them into a jar with a quart of cold water and one table-spoonful of colouring, and let them stand all night; take them out in the morning, and put one pound of sugar in the water and boil it till it looks clear. Let it cool a little, put the lemons in and boil them till they look clear.

To Preserve Oranges Whole.

862. Prepare the rinds in the same way as for marmalade, by rubbing with a hard towel, then with a sharp penknife carve the rind in deeply indented leaves or stars, &c., &c., according to fancy. Boil them thus carved, in spring-water; when soft, take them out and drain them. Cut a piece out of the top, and with a mustard-spoon scoop out all the pulp and fibres. Boil them in clarified syrup for forty minutes; in four days repeat the boiling for twenty minutes; do this four times. Last of all, boil the syrup candy-high, adding more syrup, and keep the oranges well covered with it; if they should lose colour, boil them up and add fresh syrup.

To Preserve Cherries.

863. To one pound of Morello cherries put nearly a pint of the juice of white currants (drawn as for jelly); stone the cherries, and put to them the currant juice and sugar in the proportion of three-quarters of a pound to a pound. Boil gently till the cherries are tender and the liquor will jelly; pour into pots and tie down.

Another way, less expensive.—To two pounds of cherries add one pound of sugar melted in a little water; boil the sugar and water, and skim till clear; then add the cherries and give a gentle boil.

To Preserve Jargonelle Pears.

864. Take large, finely-shaped pears, pare them very smoothly, though thinly. Simmer them in a thin syrup in a covered jar for a day or two; see that they are covered with the syrup. Drain off the syrup and put more sugar to it; clarify it and simmer the pears in it until they look transparent. Take them up and pour the syrup over them. About a-fourth more sugar than the weight of the fruit is the requisite quantity in all. The pears may either be served dry by drying them in the sun or in a slow oven when wanted, or served in the syrup, which is better and more economical. The core must be

taken out by making a hole at each end of the pear, and scooping it out with a small scoop.

Lettuce Ginger Preserve.

865. Take the stalks of white lettuces that have been allowed to run to seed, wash them, peel and cut them into lengths of about 1½ inch; weigh two pounds of these and boil them in clear water until tender. Make a syrup with three pounds of sugar to three pints of water, and when it is quite clear, put in the lettuce with half a pound of white ginger; boil it fifteen minutes, and then let it stand for two or three days; boil again for fifteen minutes, letting it stand as before. This process must be continued for three weeks until it becomes perfectly transparent; the last time of boiling the syrup must be cleared, and if not strong enough, a little more sugar should be added.

Gooseberry Hops.

866. Take the largest green gooseberries you can find, cut them at the stalk-end in four quarters, leaving whole the blossom-end; take out the seeds, and put five or six gooseberries one in the other; threading them with a strong thread to form a hop; tie a large knot in the thread, and again fasten them with a knot when threaded. Put cold spring water into your pan and a large handful of vine-leaves at the bottom, and put alternate layers of vine-leaves and gooseberry hops, having a thick layer of leaves at the top; cover them *close*, and set them over a slow fire. When scalding hot, take them off and let them stand till cold; repeat this process till they are a good green. Put them on a sieve to drain, and make a thin syrup of one pound of loaf sugar to every pint of water, well boiled and skimmed. When about half cold, put in your gooseberries, and let them stand till the next day, and give them a boil for three successive days; then make a second syrup as above, with the addition of lemon-peel cut in extremely narrow strips, and two ounces of race ginger sliced, to each pint of water; when well boiled and skimmed, give the gooseberries a boil in it. When cold put them in pots, pour the syrup over them, and lay papers dipped in vinegar or brandy over them. The ginger may remain, but must not be served, and the thread may be drawn away when used.

To Prepare Barberries for Tartlets.

867. Pick barberries that have no stones from the stalks, and to

every pound add three-quarters of a pound of lump sugar; put the fruit into a stone jar, and either set it on a hot hearth or in a sauce-pan of water, and let them simmer very slowly till soft; put them and the sugar into a preserving-pan, and boil them gently fifteen minutes. Use no metal but silver.

To Preserve Damsons and Wine-sours.

868. Fill a jar with the plums and place it over the fire in a pan of boiling water. Let it remain till the plums are perfectly tender, but unbroken, then remove it. Make a syrup of a pound of sugar and a pint of water for every pound of fruit, boil and skim it well, then pour it boiling over the fruit; let it remain five or six days, then reboil the syrup, adding to each pint a quarter of a pound more sugar. Pour it again boiling over the fruit, and let it stand a day before it is covered.

Damson Cheese.

869. Gather the fruit when full ripe, and to every peck of damsons allow four pounds of lump sugar. Set the fruit in an oven and let it remain until soft; when cold, rub it through a colander or coarse hair-sieve; then put it into a preserving-pan, and boil it quickly half an hour; after which add the sugar and kernels, and boil together half an hour longer, stirring it all the time. Wet the moulds with brandy or vinegar. When cold, put the cheese into them. Put on a paper dipped in vinegar, and keep them in a dry place, or close them, according to the directions given at par. 831.

Mussel-plum Cheese.

870. Weigh six pounds of the fruit, bake it in a stone jar, remove the stones, and take out the kernels to put in. Pour half the juice on two pounds and a half of good Lisbon sugar; when melted and simmered a few minutes, skim it, and add the fruit. Keep it doing very gently till the juice is much evaporated, taking care to stir it constantly, lest it burn. Pour it into small moulds, pattypans, or saucers. The remaining juice may serve to colour cream, or be added to a pie.

Apricot Cheese.

871. Weigh an equal quantity of pared fruit and sugar, wet the latter a very little, and let it boil quickly, or the colour will be spoiled; blanch the kernels, and add to it. Twenty or thirty minutes will boil it. Put it in small pots or cups half filled.

Apple Marmalade.

872. Pare seven pounds of apples, put them on to stew in a preserving-pan with a pint of water, when they are all dissolved rub them through a strainer; add the same weight of sugar as of apples and the grated peel of four lemons, boil nearly an hour, *stirring it all the time*, then add three ounces of essence of ginger ten minutes before taking it off the fire. Wet some shapes with any spirit and fill them. This is very useful throughout the winter.

Barberry Marmalade.

873. The barberries must be washed, stoned, and boiled in cold water till tender, in the proportion of a quarter of a pint of water to every pound of fruit. Then prepare a syrup, of a pint of water and a pound and a half of sugar to every pound of barberries. When the syrup is quite stiff, boil the barberries again till they become a jam, then add them to the syrup, and stir altogether over the fire, simmering it only for a few minutes, and turn it out into pots.

To Make Transparent Orange Marmalade.

874. Take very pale Seville oranges, cut them in quarters, take out the pulp and add to it one quarter of its weight of the pulp of China oranges. Put it into a basin, cut it in small pieces, and pick the seeds out; put the peels into a little salt and water, and let them stand all night, then boil them in a good deal of spring-water till they are tender, cut them in very thin slices and put them to the pulp. To every pound of marmalade put one pound six ounces of double refined sugar, in large lumps. Boil them gently together for twenty minutes; if it is not clear and transparent, boil it five or six minutes longer; keep stirring it gently all the time, and take care not to break the slices; when cold put it into jelly-glasses or preserving-pots. In Scotland the pulp and juice of the orange jelly turnip are added to the Seville oranges instead of the pulp of the China orange, and they make a very good and cheap substitute. Some people prefer to pound the pulp and peel together in a mortar after the peel has been boiled till tender.

Orange Marmalade (the Common Way).

875. Cut the oranges very thin, and to every pound of fruit put a pint of spring-water, then boil it gently for three or four hours. When

quite soft add one pound and a half of loaf sugar to every pound of fruit, and boil it an hour.

Quince Marmalade.

876. Pare and core the quinces, put them into water as they are cored, to prevent them from blacking; boil them till tender; take their weight in sugar; beat and break the quinces with the back of a spoon and put in the sugar, and let them boil fast, uncovered, till they slide from the bottom of the pan. Boil the marmalade a little longer and it will make good Quince Cheese.

Foreign Pine-apple Marmalade.

877. Take the largest, ripest, and most perfect pine-apples imported; pare them, and cut out whatever blemishes are to be found. Weigh each pine-apple, balancing the other scale with an equal weight of the best double-refined sugar, broken into large lumps. The white sugar that is now sold ready-powdered, is generally so much adulterated with finely pulverized starch, as to have very little strength or sweetness, and is, therefore, unfit for sweetmeats, as, when made with it, they will not keep. Grate the pine-apples on a large dish; using a large coarse grater, and omitting the hard core that goes down the centre of each. Put the grated pine-apple and the sugar into a preserving-kettle, mixing them thoroughly. Set it over a moderate and very clear fire, and boil and skim it well, stirring it after skimming. After the scum has ceased to appear, stir the marmalade frequently till it is done, which will generally be in an hour, or an hour and a half after it has come to a boil. But if it is not smooth, clear, and bright in that time, continue the boiling till it is. Put it warm into tumblers, or broad-mouthed glass jars. Lay inside the top of each doubled white tissue-paper, cut exactly to fit, and press it down lightly with the finger round the edge, so as to cover smoothly the surface of the marmalade. Lastly, tie down according to par. 831, and set them in a cool, dry place. This is a very delicious preparation of pine apple.

Orange Cakes.

878. Procure some fine Seville oranges, take their weight in sugar, tie them in a cloth like apple dumplings and boil them till *very tender*, changing the water five or six times to take off the bitterness. Open them and pass the juice and pulp through a sieve. Pound together

the sugar, pulp, and peel, till they become a fine paste: add lemon-juice enough to give a pleasant sharpness; make into cakes and dry them on tins at a little distance from the fire.

To Dry Jargonelle Pears.

879. Pare them very thin, before they are quite ripe, and simmer in a thin syrup; let them lie a day or two, then make the syrup richer and simmer again. Repeat this till they are clear, then drain, and dry them in the sun, or in a cool oven for a short time. They may be kept in the syrup and dried as wanted, which makes them more moist and rich.

Another Way.—Take some fine pears before they are quite ripe, pare them and set them over the fire in cold water. Let them stew till tender; lift them gently out and put them into cold water for a quarter of an hour, then drain on a sieve into a pound of sugar and two quarts of water for every fifty pears; pot the fruit, and let it stand two hours. The pears must then be taken out and suspended in a slow oven, with the large end down, for twelve hours. Clarify the syrup in which the fruit has stood, and boil it; when quite cool, the pears must again remain in the syrup, and be transferred to the oven for the same time as before. Boil the syrup, and continue the process till the pears are perfectly dry.

To Dry Siberian Crabs for Dessert.

880. Prick the crabs full of holes, fill three or four jars with them, then put them in the oven till tender. Sift a quantity of lump sugar pounded. Dip the crabs in the sugar, lay the stalks upwards on paper, and dry in a very cool oven; dip in the sugar again and again, and dry them between whiles, and afterwards as long as is necessary. They must be laid in the hastener, or some very warm place to dry.

To Dry Cherries with Sugar.

881. To every four pounds of fruit stoned, weigh one pound of powdered lump sugar; put the fruit and sugar into a preserving-pan; boil very gently for three-quarters of an hour, then put them by in a basin with their own liquor till cold; drain them from the syrup, and lay them singly to dry on dishes moderately heated; let them remain in the oven till they look dry at the top, then take them out, and in a week turn them on to clean dishes, and put them once more into the

oven as above. Take them out and put them into a jar, which must be kept covered as for other preserves.

Another.—Take ten pounds of Kentish cherries stoned, and two pounds of powdered loaf sugar. Scald the cherries. When drained, sprinkle them over with the sugar, and let them lie till the next day, then scald them in their own liquor, drain, and put them in the sun to dry upon sieves covered with something thin. When nearly dry enough, drop them in spring water, take them out immediately and put them to dry for use.

To Dry Gooseberries.

882. To seven pounds of red gooseberries add a pound and a half of powdered sugar, which must be strewed over them in the preserving-pan. Let them remain at a good height over a slow fire till they begin to break, then remove them. Repeat this process for two or three days, then take the gooseberries from the syrup and spread them out on sieves near the fire to dry. This syrup may be used for other preserves. When the gooseberries are quite dry, store them in tin boxes or layers of paper.

To Dry Apricots Whole.

883. Pare the fruit very thin, take out the stones, sprinkle them with powdered loaf sugar, one by one, let them lie a day, next day carefully boil them; when done put them on dishes, taking care they do not touch, change the dishes when they are moist, and sprinkle sugar lightly over them, turn them every day, sprinkling sugar till they are nearly dry.

To Dry Plums.

884. If you wish to have them of a good green, you must do them before they get soft, when they are just turning colour; make a thin syrup of half a pound of sugar to cover about three dozen plums, put them in a stew pan covered with vine leaves, keep them gently doing till they are tender, then take them off and let them stand all night. Make a rich syrup by adding two pounds of sugar, skim it well, boil it till thick; when it is cold put in your plums and let the syrup cover them, set them on the fire to scald till tender and clear, put them into a bowl, when they have stood two or three days take them out and lay them on a sieve to dry in a cold place, turning them once a day for three or four days, then put them on an earthen dish, and after-

wards into a slow oven, after the bread has been drawn two or three hours; and let them remain one night.

To Dry Barberries in Bunches.

885. Have ready bits of flat white wood, three inches long, and a quarter of an inch wide. Tie the stalks of the fruit on the stick from within an inch of one end to beyond the other, so as to make them look handsome. Simmer them in some syrup two successive days, covering them each time with it when cold. When they look clear, they are simmered enough. The third day, do them like other candied fruit.

To Candy Lemon or Orange Peel.

886. Cut the fruit lengthways and take out the pulp, putting the rinds into rather a strong salt and water for six days; then boil them in plenty of spring-water: when quite tender take them out and lay them on a hair sieve to drain; make a thin syrup of fine lump sugar, one pound to one quart of water; put in the peels and boil them half an hour, till they look clear; have ready a thick syrup made of lump sugar with as much water as will dissolve it; put in the peels and boil them slowly till the syrup candies; then take them out and grate fine sugar over them, lay them on a hair sieve to drain; set them before a fire to dry, and keep in a dry place. There should be no lid on the saucepan. Any pieces of orange or lemon peel can be candied by this receipt; and, when done, are quite sufficient for home consumption.

Strawberry, Raspberry, Red Currant, or Currant and Raspberry Jelly.

887. Put the fruit into an earthen pan, squeeze them well with a new wooden spoon; mix an equal weight of sugar in large lumps, with the fruit, and let them infuse for an hour, that the sugar may draw out the juice; next pour on a little water. If the strawberries are too ripe, squeeze in the juice of two lemons; put all this into a jelly-bag nearly new; mix some melted isinglass with the juice, but *the whole must be very cold.* The proportion of isinglass before melting should be at the rate of an ounce to four pounds of fruit.

Red or White Currant Jelly, made by Boiling.

888. When the fruit is quite ripe, gather it on a dry day; as soon

as it is nicely picked put it in a jar, and cover it down very close; set the jar in a saucepan about three parts filled with cold water, put it on a gentle fire, and let it simmer for about half an hour; take the pan from the fire and pour the contents of the jar into a jelly-bag; pass the juice through a second time, do not squeeze the bag; to each pint of juice add a pound and a half of good lump sugar in large lumps; when it is dissolved, put it into a preserving-pan, set it on the fire, and boil gently, stirring and skimming it the whole time till no more scum rises, *i. e.*, about twenty minutes, it will then be perfectly clear and fine; pour while warm into pots, and, when cold, cover them with paper wetted in brandy, and tie down as in par. 831.

Black Currant Jelly.

889. Boil the fruit till the juice flows, then strain it through a jelly-bag, and set it again over the fire for twenty minutes; after which add half a pound of sugar for each pound of juice, and boil the whole ten minutes longer.

Gooseberry Jelly.

890. Take fine gooseberries, not too ripe, of any colour; wash and drain them, and add a pint and a half of cold water to every quart of gooseberries. Place them over the fire, and boil till the whole becomes a jam, then strain it well through a jelly-bag. Make a rich syrup, in the proportion of a pound of loaf sugar to a pint of the liquor, with a little water in which the remains of the strained fruit have been boiled. When the syrup is sufficiently boiled, add it to the juice and boil them together for a quarter of an hour, then pour off.

Raspberry Jelly.

891. Take fresh, nicely-picked raspberries, and simmer over the fire till the juice flows, then strain, and weigh the juice, but boil it for ten minutes before adding the sugar, which must be in the proportion of one pound and a quarter to one pound of juice; boil five minutes longer, skim it, and pour into pots. This is a good jelly for flavouring creams, and requires no sugar to be added for that purpose.

Blackberry Jelly.

892. This preparation of the blackberry is more agreeable than the jam, as the seeds, though very wholesome, are not agreeable to all. It is made in the same way as currant jelly (*see* par. 887); but the

fruit is so sweet that it only requires half the weight of the juice in sugar.

Or,—Take blackberries when turned red, pick and put them into a jar, tie them up close, and put them in a kettle of water; then let them remain over the fire till reduced to a pulp, strain, and put a pound of moist sugar to every pint of juice, boil it till it jellies.

N.B.—If used medicinally for stone, or gravel, or dropsy, take a piece the size of a nutmeg on going to bed.

Plum Jelly.

893. Take only those plums which are perfectly sound; remove the stalks, and put them into large stone jars; if damsons, make an incision in each; cover the jars with bladder, put them in deep pans of water over the fire, and let the water boil gently for three or four hours, till all the juice has come from the fruit; then strain through a jelly-bag, and boil with an equal weight of lump sugar (as at par. 889), taking care to stir it constantly.

Orange Jelly.

894. Strain the juice from two dozen China oranges over the grated rind of one, and add the juice of four Seville oranges. Strain the juice through a jelly-bag, and add the proportion of one pound of lump sugar to one pint of juice. Set it over the fire and let it boil for twenty minutes. Then boil a quarter of a pound of isinglass in half a pint of water with the rind of a lemon, till the isinglass is dissolved. Add a spoonful at a time to the juice as it boils till you perceive it stiffen, then pour into pots. There is so little gelatinous quality in the juice of the orange, that it must be aided by the isinglass to form the jelly.

Four-Fruit Jelly.

895. Take equal quantities of ripe strawberries, raspberries, currants, and red cherries. All should be fully ripe, and the cherries must be stoned, taking care to save the juice that comes from them in stoning. Add it afterwards to the rest. Mix the fruit together, and put it in a linen bag. Squeeze it well into a tureen placed beneath. When it has ceased to drip, measure the juice; and to every pint allow a pound and two ounces of the best double-refined loaf sugar in large lumps. Mix together the juice and the sugar; put them into an enamelled preserving-pan; set it over the fire, and let it boil half an hour—skimming it frequently. Try the jelly by dipping out a spoonful, and

holding it in the open air. If it congeals readily, it is sufficiently done. Put the jelly warm into wide-topped glasses. Cover it with double-tissue paper, which must be white, and cut exactly to fit the surface of the jelly. Lay it nicely and smoothly inside the top of the glass, pressing it down with the fingers all round the edge. Then tie down with the white-of-egg paper, as at par. 833.

Medlar Jelly.

896. Take medlars when they are quite ripe. Wash them and put them into a preserving-pan with as much water as will cover them; let them simmer slowly till they become quite a pulp, then strain through a jelly-bag, and to every pint of liquor add three-quarters of a pound of loaf sugar; boil it an hour, or till it is quite clear, and put it into preserving pots or moulds.

Apple Jelly.

897. Take codlin, or other light-coloured apples, pare and cut them in quarters into a deep saucepan, with as much water as will just cover them; boil to a pulp, and strain through a jelly-bag; weigh, and to every pound of liquor add a pound of lump sugar powdered. Boil till it comes to the top of the pan, for a quarter of an hour, or rather more; put it into teacups or moulds. The juice of a large lemon to every pound of sugar is an improvement; and the sugar should be made hot before it is added to the juice.

Syrup of Lemons.

898. Clarify three pounds of lump sugar (see page 339); then pour into the syrup while at weak candy height, and boiling, the juice of eighteen good lemons and the peel of three grated. Let it boil together for three minutes, strain it through a lawn sieve, and bottle it. When cold, cork it down tight, to keep for use. This syrup is ready for lemonade, punch, ices, jellies, &c., without any trouble.

Syrup of Oranges.

899. This is made exactly in the same way, substituting oranges for lemons.

Economical Syrup of Oranges or Lemons.

900. A clarified syrup of these fruits may be made with the *white* peel of oranges or lemons after the outside rind has been removed, which

always leaves behind a considerable quantity of the essential oil and bitter principle.

Syrup of Mulberries, Currants, Strawberries, or Raspberries.

901. Is made in the same way as for their respective jellies, see page 357, with the addition of a quarter of a pint of water to each pound of fruit, added to the sugar and made into a syrup. The fruit is first boiled and strained, after which it is boiled up for ten minutes with the syrup, and poured while warm into *narrow*-necked bottles which are to be corked, and kept in a cool place.

Another Raspberry Syrup.

902. Put to twelve pounds of raspberries and red currants mixed, four ounces of tartaric acid, and two quarts of water. Let it stand twenty-four hours, then strain through muslin, and put to every pint of syrup half a pound lump sugar. Let it stand again twenty-four hours, stirring it frequently until the sugar is dissolved. Bottle for use. Leave it open for at least a month, and then only put in a piece of twisted paper, or *very loosely* cork it. N.B. The tartaric acid should be added before the water.

Apple, Pear, or Pine-apple Syrup.

903. May be made by boiling in clarified syrup an equal quantity of either fruit, cut in small squares, but not washed or broken. The syrup extracts the flavour, and may be poured off, leaving the apples, &c., which may afterwards be used as a common preserve.

Sect. 2.—Bottling.

904. Remarks.—There are now several methods adopted for preserving fruits, ripe and unripe, without any, or, at all events, the usual proportions of sugar. They all depend upon the exclusion of the air, and the several methods are directed to that end. Much depends upon the place where they are kept; and if this is not dark, cool, and dry, it is far better to bury them in garden mould, or sand if at hand, at least a foot beneath the surface, and head downwards, and then to dig them up when wanted. If this plan is adopted, the place should be protected from much rain, as, for instance, beneath an evergreen or some similar place. By burning the match in the mouth of the

bottle, atmospheric air is excluded for the moment, and sulphurous acid gas substituted for it, which is quickly condensed, and causes a slight tendency to a vacuum. The bladder used for this purpose should be soaked in water for forty-eight hours.

Bottling any Ordinary Fruits.

905. The following is an excellent method. Take three pounds of fruit, boil ten minutes; add one pound of sugar, and boil ten minutes longer; burn a sulphur match in the bottle; put the fruit *quickly in while hot;* then *immediately* tie on a piece of well soaked bladder, smooth side outwards. It is better kept in a dark, cool, dry place.

To Preserve Fruit for Tarts, or Family Desserts.

906. Cherries, plums of all sorts, and American apples, gather when ripe, and lay them in small jars that will hold a pound; strew over each jar six ounces of good loaf sugar, pounded; cover with two bladders each separately tied down; then set the jars in a large stew-pan of water up to the neck, and let it boil three hours gently. Keep these and all other sorts of fruit free from damp.

To Bottle Rhubarb.

907. Cut the rhubarb as for tarts; fill the bottles to the neck, then put in as much water as they will hold. Cork, and tie them over with a double bladder, and let them remain in a cool oven till the rhubarb just cracks.

To Bottle Black Currants.

908. Top and tail the currants, and when the bottles are filled, add one table-spoonful of gin. Keep in a cool and dry place, and either resin the corks or tie them over with bladders.

To Bottle Plums or any Fruit for Tarts.

909. Fill wide-mouthed bottles with the fruit and as much cold water as they will hold, and cover them with bladder; then put them into a kettle of *cold* water; first wrapping the bottles with clothes or haybands to prevent their touching; let them get quite hot, but not boil; leave the bottles in the water until it is quite cold again; they should be kept in a dry place. And when the above directions are attended to, the result will be far superior to any other method of

bottling fruit, especially with stone-fruit, as plums, damsons, greengages, &c.

Sect. 3.—Preserving in Spirit or Wine.

910. Very little preparation is required for this kind of preserve, the fruit being merely covered with the spirit or wine, with or without sugar. It must, however, be carefully corked and tied down with bladder, or the spirit will evaporate.

To Preserve Apricots, Peaches, and Greengages in Brandy.

911. The fruit must be gathered at its full size, but not too ripe; wipe the fruit, and prick it full of holes with a fine needle; to two pounds of fruit put one pound of double-refined sugar and three pints of water; when it boils put in the fruit, and boil it gently till tender, keeping the fruit under water; cover it close in the same pan one night, just give it a boil up next day, and lay the fruit on a dish to drain from the syrup; boil the syrup nearly half an hour, when almost cold put the fruit in glass jars. To one cup of syrup add one of brandy till full.

Brandied Cherries.

912. Weigh the finest morellas, having cut off half the stalk, prick them with a new needle, and drop them into a jar or a wide-mouthed bottle; pound three-quarters of their weight of sugar or white candy; strew over, fill up with brandy, and tie a bladder over.

Or, fill a wide-mouthed quart bottle with morella cherries, (the stalks cut short and the cherries pricked with a needle,) three parts full of the cherries, one pound sifted sugar, (or white sugar candy,) one ounce bitter almonds, and one quarter of an ounce bruised cinnamon—in layers. Fill up with best French brandy, then cork and seal, or tie with bladder. The bottles should be reversed occasionally during the first month, to prevent the sugar from settling at the bottom.

To Preserve Strawberries in Wine.

913. Put a quantity of the finest large strawberries into a gooseberry bottle, and strew in three large spoonfuls of fine sugar; fill up with Madeira wine, or fine sherry.

Brandy Grapes.

914. For this purpose the grapes should be in large close bunches,

and quite ripe. Remove every grape that is the least shrivelled, or in any way defective; with a needle prick each grape in three places; have ready a sufficiency of double-refined loaf sugar, powdered and sifted; put some of the sugar into the bottom of the jars, then put in a bunch of grapes and cover all thickly with sugar, then another bunch, then more sugar, and so on till the jar is nearly full, finishing with a layer of sugar; then fill up to the top with the best white brandy; cover the jars as closely as possible, and set them away; they must not go over the fire; the grapes should be of the best quality, either white or purple.

Sect. 4.—Preserving in Ice.

915. Ice is the most useful of all the means of preserving meats and fish in a fresh state, with or without the aid of salt. In the section treating of salting, it will be observed that ice aids that process in a remarkable manner when conducted in warm weather. At present we have to consider ice as a means of keeping fish, creams, &c., in a fresh state.

916. The Ice to be used for the purpose must either be obtained in the winter and preserved in an ice-house (for the proper construction of which see page 365), or it must be purchased as it is wanted. Most pastrycooks in the country have an ice-house, and retail coarse and dirty ice, which serves tolerably well to freeze creams, &c., but not for actually putting into beverages, such as are mentioned at page 335. For this purpose the ice imported by the Wenham Lake Company should be used (whose London offices are at 164, Strand); and, indeed, for all purposes it is now very generally adopted. It may not generally be known, that ice is not all of the same temperature; some is only just below 32 degrees, and such an article rapidly thaws on the slightest increase of heat, and it also goes a very little way in freezing other mixtures when in contact with it. But the Wenham Lake ice is obtained from a source where the ice is frozen at a very low temperature indeed, and much of it will indicate as low a scale as 12 or 15 degrees of Fahrenheit. When this is really the case it is better worth 4d. per pound than ice at 32 degrees is 2d., because it will go more than twice as far.

The Price of this Ice is as Follows:—

	s.	d.
In quantities of 100 lb. and upwards, per 100 lb.	7	0
For 25 lb.	2	0
Less than 25 lb., per lb.	0	2

The company's vans deliver their ice in London, or it is forwarded to the country by the ordinary conveyances, packed in a mat or blanket, for 2s. extra, without perceptible waste.

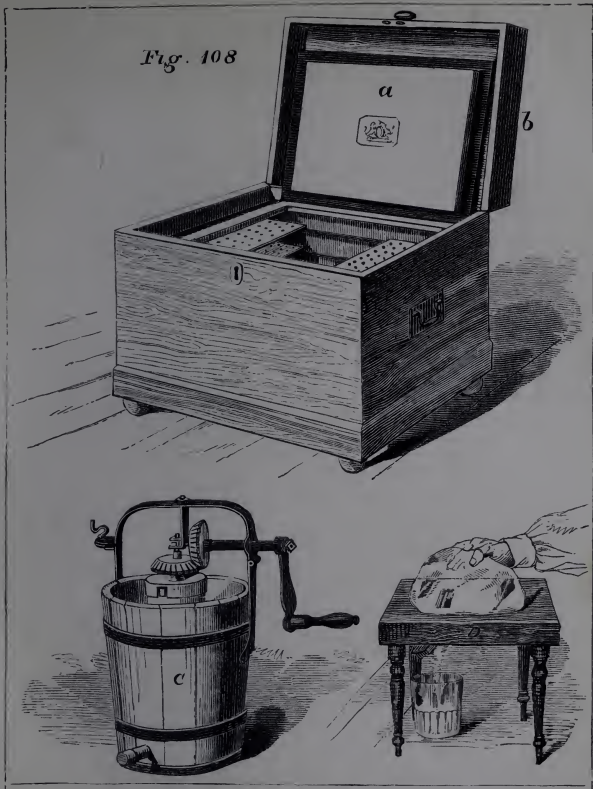
917. In order to keep this ice for some days, the company sell a *Refrigerator*, or portable ice-chest, which is a very efficient instrument, though not, perhaps, quite coming up to the description given by its proprietors. By its aid those who have not ice-houses may be supplied with ice in London at sums varying, according to the quantity, from 4s. to 10s. 6d. per week. *Fig.* 108 shows a sketch of the Refrigerator, with its sliding and perforated shelves for cooling and preserving wines, fruits, and provisions, without permitting them to come into contact one with the other. (A) and (B) are the two lids of the Refrigerator; (A) when closed renders the interior air-tight, and being constructed like the sides and bottom, with a substance impervious to caloric, surrounds the ice and all the contents of the Refrigerator with a non-conducting medium, and speedily reduces every thing so enclosed to an uniform temperature very little above the freezing-point. (B) is the exterior lid forming part of the chest which encloses the non-conducting and ice-preserving portion of the Refrigerator, making the whole into a handsome piece of furniture. These exterior chests are made of any material or size, and in any style, for the pantry, the hall, or the dining-room. For icing wines, the Refrigerators possess *peculiar advantages;* the temperature to be imparted to wine can be regulated at pleasure, and if more wine be iced at any time than is required for the particular occasion, it is neither wasted nor injured, as it can be left for any period in the Refrigerator without deterioration. To ice wine it is necessary merely to place it in the Refrigerator; and the temperature can be regulated by the length of time during which it is suffered to remain, and by placing it in direct contact with the ice or otherwise. By its aid also a small quantity of ice is made to serve as a supply for many days; and butter, creams, jellies, fruit, game, and provisions of every kind, are preserved and kept *deliciously cool* for any length of time.

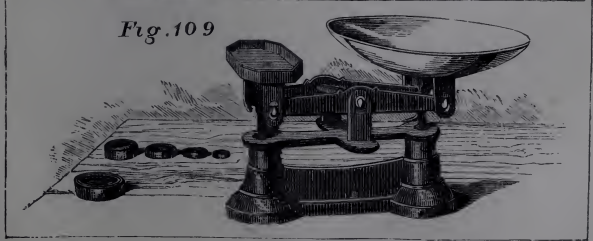
PRICE OF REFRIGERATORS AND ICE REQUIRED.

No.	EXTERIOR DIMENSIONS.	PLAIN. £ s. d.	ENAMELLED. £ s. d.
I.	2 ft. 2 in. long, 2 ft. wide, 2 ft. 4 in. high	4 10 0	5 0 0
II.	3 ft. 3 in. long, 2 ft. 2 in. wide, 2 ft. 7 in. high	6 6 0	7 0 0
III.	3 ft. 5 in. long, 2 ft. 5 in. wide, 2 ft. 8 in. high	7 7 0	8 8 0
IV.	4 ft. long, 2 ft. 8 in. wide, 3 ft. 2 in. high	10 10 0	12 0 0

Packing for the Country, 3s. 6d. each.

Supply of Ice, for No. I., 50 lb. weekly; No. II., 75 lb. to 100 lb. weekly; No. III., 100 lb. weekly; No. IV., 150 lb. weekly.





REFRIGERATOR, ICE MACHINES, AND WEIGHING MACHINE.

Ice-houses.

918. These Luxuries of life, which can scarcely be said to belong to the practice of *Economy*, are generally built beneath the surface of the earth, though they may also be so arranged as to perform their office above ground. The under-ground ice-house is merely a tank for the ice, circular or square in form, but gradually decreasing in size towards the bottom, so that the ice has a tendency to sink into a solid mass, and does not remain supported by the walls when it has melted below This should be thoroughly drained at the bottom, *taking care that no warm air is admitted through the drain*, which must be prevented by a good trap at the mouth. The ice should rest on a wooden grating. The tank is better made of hollow bricks, with the walls eighteen inches thick, which should be cemented outside, to prevent infiltration of water from the soil. It should be arched over, with a hole for the introduction of the ice, unless it can be easily inserted where it is to be taken out as it is wanted, which should be at the top of one side. The above hole, if made, should be covered with a stone, which should be securely fastened, and again covered with straw, to the depth of some feet, over which should be some rough boards or soil, to keep all quiet in windy weather. At the side a small door is fixed, opening into a passage, which again should be guarded by another door, or even a third, all being air-tight, and thus enclosing one or two volumes of air, which is a very slow conductor of heat. In this way ice may be kept through the summer with great ease; but every time the well is opened some small quantity of warm air is admitted, and the ice is raised in temperature more or less. Where there is a dairy the ice-house should be constructed so that the entrance to it should be through the dairy; and thus, not only is the coolest air admitted to the ice-house, but the ice when first brought out, as well as the cold air with it, helps to cool the dairy at the time when it most requires it. When an ice-house is built above ground, it may be made exactly of the same form, and also of hollow bricks; but over this must be heaped a profusion of straw or leaves, *which must be thatched, and thus kept dry*, or this covering will be utterly useless. Wet straw and other vegetable matter soon heats by fermentation, and thus does harm instead of good.

A Machine for Making Ice-creams.

919. Is also sold by the same company, adapted for private families

it certainly answers the purpose remarkably well, but so in fact do the ordinary ice-pails of the confectioners. For those who like their ice frozen very hard, this pail is, however, far superior to any other. The object of the stirring, or rotatory motion, communicated to the mixture, is to prevent the outside from being frozen more than the inside, and to keep all of a consistence half-way between snow and ice, which is the object of all ice-cream machines. The price of that sold by the Wenhan Lake Ice Company is £3 10s. (*see fig.* 108 c.)

Directions for Use.

920. Having prepared the water or cream mixture, put it into the freezing-pot, and adjust the apparatus; then fill the pail with ice broken up sufficiently small to be freely admitted into the pail round the freezing-pot; but to every 3-inch layer of ice, add a layer of salt, using about a quarter as much salt as ice. Press these down with a stick with one hand, at the same time turning the machine with the other, without stopping, for about eight or ten minutes, or until the contents are sufficiently frozen, which will be known by a difficulty in turning the handle, then let the frozen cream remain a few minutes without stirring, and it will be fit for table; but if required to be kept long before use, the wooden plug should be taken out of the pail, and the water let off; then put the plug in again, and refill the pail with ice and salt as before, but use only half the quantity of salt (*see fig.* 108 c.)

To Mould Ices.

921. Fill the mould as quickly as possible with the frozen cream, shut it up, bury it in ice and salt, and let it remain an hour or more; for dishing, have the dish ready, dip the mould in cold water for about one minute, wipe it, take off the top and bottom covers, and turn it into the dish; this must be done expeditiously.

To Make Raspberry or Strawberry Ice-cream.

922. To one pound of raspberry or strawberry jam, add the juice of one or two lemons, half a pint of cream, and a pint and a half of new milk; colour with a few drops of tincture of cochineal, and freeze. If raspberries or strawberries are in season, it may be made with the pulp of two pounds of either, or of the latter added to a quarter of a

pound of red currants, with three-quarters of a pound of sugar, a pint of cream, and one quart of milk.

To Make Three Pints of Lemon-water Ice.

923. Take six lemons, four oranges, two pints of water, fourteen ounces of sugar; mix and freeze.

Iced Jelly.

924. Make calves' feet jelly in the usual way; then put it into a freezer and freeze it as you would ice cream; serve it up in a glass bowl or in jelly-glasses; you cannot mould it in this way, but the taste of jelly when broken up is much more lively than when moulded; also, it sparkles and looks handsomer.

Currant Water Ice.

925. Pick a sufficiency of ripe currants from their stems; then squeeze the currants through a linen bag, and to each quart of the juice allow a pound of powdered loaf sugar; mix them together, and when the sugar is thoroughly melted put it into a freezer and freeze it in the manner of ice-cream; serve it up in glass bowls; it will be found delicious in warm weather.

Plum Water Ice.

926. Take some fine ripe plums; wash them, cut them in half, and stone them; crack the stones, and take out the kernels; weigh the plums, and to every pound allow a pound and half of loaf sugar, and the white of an egg beaten to a stiff froth; mix, in a preserving kettle, the white of egg with the sugar, which should be finely powdered, and allow to each pound and a half of sugar half a pint of water; having stirred it well set on the fire (but not till all the sugar is melted), add the plum kernels, and boil and skim it; when the scum ceases to rise, take the syrup off the fire, pour it into a white-ware vessel, and remove the kernels; while you are boiling the sugar put the plums into another vessel, and boil them by themselves to draw out the juice; then put them into a linen bag, and squeeze all the juice into a deep pan or pitcher placed beneath; afterwards mix the plum-juice with the syrup, stirring them thoroughly together, and put it into a freezer; freeze it well, and when done serve it in a glass bowl and eat it in saucers.

Damson Water Ice.

927. Damson Water Ice may be made as above, except that you boil the damsons whole and make no use of the kernels. When the damsons have all burst open, put them into a linen bag; squeeze it well, mixing the juice with an equal quantity of syrup previously prepared, and then freeze it. The juice of damsons is much thicker and richer than that of plums, but it requires still more sugar.

Cherry Water Ice.

928. Cherry Water Ice is made nearly as above, except that the cherries must be stoned, but not boiled. Put them raw into the bag, and squeeze them. The cherries should be of the best and most juicy red sort, and thoroughly ripe.

Strawberry Water Ice.

929. Strawberry Water Ice is made of ripe strawberries put into a linen bag, and the juice squeezed out. Then measure it, and to each pint of juice allow half a pound of finely-powdered loaf sugar. Having mixed thoroughly the juice and sugar, put it into a freezer and freeze it. In this manner ices, without cream, may be made of currant and raspberry juice mixed raw with sugar.

Gooseberry Water Ice.

930. Having stewed the gooseberries, squeeze out the juice through a linen bag. To every pint allow a pound of loaf sugar. Mix it well, and freeze it.

Ice-plane.

931. A machine for reducing ice to thin layers for mixture with various beverages, is likewise sold (*see* fig. 108 D); also moulds, freezers, and breakers, according to pattern and size.

To Preserve Animal Substances with Ice.

932. In order to keep game or fish, by means of ice, it is only necessary to bring them into contact with it, or at least into close proximity. Thus, game may be packed in hampers with bladders of pounded ice intermixed, or blocks of lump ice covered with any impervious substances, such as oil-silk. In this way, ptarmigan are sent from Norway, in cases which are sometimes nearly a month in their

transit, but without any putrefaction going on. For fish the ice requires no waterproof protection, and they may be packed in it to great advantage. Indeed, were it not for the anti-putrefactive powers of ice, the trade in fish would be diminished to a very small amount of what it now is.

Freezing Mixtures.

933. As substitutes for ice these are sometimes used; but while the latter can be obtained at little more than one penny per pound on the small scale, and at less than that price by wholesale, in point of economy it will supersede all other methods of reducing the temperature. The mixture here given will be found the best for the purpose:—

Muriate of ammonia	5 oz.
Nitre	5 ,,
Sulphate of soda	8 ,,
Water	16 ,,

Mix the salts previously powdered with the water, and immerse in them the vessel containing the substance to be frozen. The mixture falls in temperature from 50 degrees to 4 degrees Fahrenheit: but, as already observed, the cost is greater than by means of ice. The quantity here specified will not freeze more than six or eight ounces of cream, and costs about 1s. 4d., for which sum sixteen pounds of ice may be purchased, or enough to freeze more than five pounds of cream, when mixed with a proper quantity of common salt, at a cost of a halfpenny. It is manifest therefore that, except in an emergency, when ice cannot be procured, this freezing mixture is not to be considered advantageous in any point of view.

Sect. 5.—Salting.

934. Salting, sometimes called pickling, is the preservation of otherwise destructible articles by means of common salt. Other substances are likewise used as adjuncts, but the main reliance is placed upon the above-named salt. These consist of *nitre*, *sugar*, or *treacle*, *spices*, and sometimes *pyroligneous acid*, *charcoal*, or *ice*. Bay salt is only a variety of common salt obtained by evaporating sea water, and is therefore not enumerated in the above list.

935. Salt, whether in substance or in solution, prevents the decomposition of animal substances at a temperature below 60 or 65 degrees; but above that heat it loses its effect, and the tendency to putrefaction

is very little controlled by it. Salt does not change the colour of flesh to any great extent, but makes it more pale by the discharge of the blood which it contains. In using salt the great point is to cause it to enter the interior, and to take care that the article to be salted is not raised in temperature above 55 or 60 degrees.

936. Nitre has a similar effect to common salt, but it hardens the fibre more, and reddens it very considerably.

937. Sugar seems to act by virtue of its large proportion of carbon, and this last by its power of absorbing oxygen, which is the great promoter of decomposition.

938. Ice, when added to saline solutions, in salting, has a wonderfully useful effect, by lowering the temperature sufficiently to prevent decomposition from going on. With the aid of this material, in the height of summer, any meats may be salted with perfect safety, by adding ice enough to the brine or pickle to keep *the whole* between 55 degrees and 32 degrees—below which it should never be allowed to fall.

939. Meat is either salted by rubbing on the saline ingredients in a powdered condition, using the hand, and especially the ends of the fingers; or else the meat is dipped in a solution, which is either salt and water, called *pickle*, or else the juices brought out from previous saltings, and called *brine*. Meat, when covered with salt, will soon absorb large quantities of it, while, at the same time, it gives out its watery particles; and in this way it is often preserved, taking care to turn it daily, which should always be done in every case of preservation with this material.

940. Plain Salting, that is, without any addition to common salt, is adopted for meats which are to be dressed in about six or seven days, as a leg of pork, a round of beef, &c. A *leg of pork* should be merely rubbed over with salt, and the liquor allowed to run out, turning the leg daily, and rubbing the salt well into the cut surface, particularly round the bone and into the clefts of the flesh and fat. According to the taste for salt, it should be dressed after five to nine days' salting. *Boiling beef* is cured in the same way, but most people like the addition of a little saltpetre, in the proportion of about one-eighth.

To Cure Bacon as in Wiltshire.

941. Sprinkle each flitch with salt, and let the blood drain off for twenty-four hours; then mix a pound and a half of coarse sugar, the

same quantity of bay-salt, not quite so much as half a pound of saltpetre, and a pound of common salt, and rub this well on the bacon, turning it every day for a month; then hang it to dry, and afterwards smoke it ten days. This quantity of salts is sufficient for the whole hog.

To Make a Pickle that will Keep for Years, for Hams, Tongues, or Beef, if Boiled and Skimmed between each Parcel of them.

942. To two gallons of spring water put two pounds of coarse sugar, two pounds of bay and two pounds and a half of common salt, and half a pound of saltpetre, in a deep earthen glazed pan that will hold four gallons, and with a cover that will fit close. Keep the beef or hams as long as they will bear, before you put them into the pickle; and sprinkle them with coarse sugar in a pan, from which they must drain. Rub the hams, &c., well with a pickle, and pack them in close; putting as much as the pan will hold, so that the pickle may cover them. The pickle is not to be boiled at first. A small ham may lie fourteen days, a large one three weeks; a tongue twelve days, and beef in proportion to its size. They will eat well out of the pickle without drying. When they are to be dried, let each piece be drained over the pan; and when it will drop no longer, take a clean sponge and dry it thoroughly. Six or eight hours will smoke them, and there should be only a little sawdust and wet straw burnt to do this; but if put into a baker's chimney, sew them in coarse cloth and hang them a week.

To Salt Flat Ribs of Beef.

943. Two ounces of saltpetre, a quarter of a pound of treacle, two ounces of powdered allspice, and a sufficient quantity of common salt, to be well rubbed and turned every day for about ten days. It should be put into cold water, and boiled till the bones will slip out easily; then pressed by a weight till cold, when the outside skin should be taken off, or the meat will look black. If preferred it may be rolled round and pressed.

To Cure a Round of Beef Red.

944. To a round of beef of about thirty pounds, use a quarter of a pound of saltpetre, one pound of sugar, two pounds of common salt; rub half of these ingredients well into the beef; the other half boil in four quarts of water, and pour hot over it; rub and turn

it in the pickle every day for three weeks; then take it out and make it up into a nice round; put a quart of water into a dish with it, cover the top well, and bake it twelve hours in a slow oven.

Ham, Tongue, or Meat Pickle.

945. One pound of coarse moist sugar, one pound of bay-salt, one pound and a half of common salt, a quarter of a pound of saltpetre, two ounces of sal prunella, and one gallon of soft water; mix all well together, and keep it stirred frequently. A tongue will be ready in a fortnight, or ham in three weeks or a month.

Pickle for Beef, Pork, &c.

946. Pound and mix one pound of bay-salt, one pound of saltpetre, eight quarts of common salt, three pounds of brown sugar, three ounces of Jamaica pepper, two ounces of black pepper, one ounce of long pepper. Dissolve in ten gallons of water, and boil for half an hour. (*A very good receipt.*)

To Cure Hams or Tongues with a Full Flavour.

947. Mix together in a powder half a pound of saltpetre, a quarter of a pound of sal prunella, two ounces of black pepper, and one ounce of pimento; this quantity will be sufficient to use with about six or seven pounds of salt, and two pounds of treacle. Do not make a pickle in the first instance, but put a ham or two in a pan, cover them with salt and a proportion of the above mixture (about one-eighth), pouring over some treacle; repeat this two or three times as it may dissolve. A pickle will thus be formed so that the subsequent ones will require less salt, &c. A ham of twelve or fourteen pounds will take about a fortnight, and a larger one about an extra day to every pound, rather more than less, particularly for the first.

Another Way.—To each ham of twenty pounds put one pound of bay-salt, half a pound of common salt, two ounces of saltpetre, and one ounce of black pepper; blend all together, and rub the ham with it every day; in three days pour one pound and a half of treacle upon it. Continue to turn and rub it every other day for three weeks or a month. Then take it out of the pickle and put it into cold water for twenty-four hours; let it drain a day or two, then dust it with flour, and hang it in the kitchen to dry. (Some prefer to hang it to dry without soaking it in water.) When it is to be cooked, put it into boiling water.

To Cure Westphalia Hams.

948. To a ham of twelve or fourteen pounds put as much common salt as will keep it, and not more, two ounces of bay-salt, one ounce of saltpetre, and a quarter of a pound of coarse sugar; let it lie twenty-four hours, and then add a half-pint of vinegar, a large handful of bay-leaves, thyme, red sage, and sweet marjoram, all chopped small together and put into the vinegar with a table-spoonful of Cayenne pepper; let it lie three weeks or a month, according to the size of the ham, basting it continually with the liquor, and turning it every day.

To Make Imitation Brawn.

949. Take the upper jaw, the feet, the ears, and the hocks of a pig; put to them half an ounce of saltpetre and a little common salt, and let them lie a week; then boil them till they are very tender, with five cow-heels (already boiled till perfectly tender, and the bones carefully extracted) and an ox-tongue; lay it in a round tin, and put a weight upon it; let it stand till quite cold; be particularly careful to take out the bones, and put the sword on the outside. To make a pickle to keep it in, boil one gallon of water, one quart of wheat bran, and one pound of salt an hour; strain and let it stand till cold; make a fresh pickle every fortnight.

Spiced Beef.

950. Procure the silver-side of a round of beef, and pickle as for ham (945), letting it lie for about a fortnight or three weeks. A few days before taking it out, add a piece of fat. Let it drain twenty-four hours, then make three or four holes through it with a strong pointed wooden pin, about an inch in diameter, passing from one cut surface to the other. Next fill these holes with the following stuffing, driving it in with great force, and using the flat end of the pin:—Suet, half a pound; ground pimento, one ounce; and a bunch of knotted marjoram, well chopped and mixed together. The great art is in well cramming these holes, which take an enormous quantity when properly filled. Lastly, skewer the fat in the inside of the lean, and roll it tightly in strong brown paper, tying it up with string. Place it on a trivet in a baking dish, and bake thoroughly in a very slow oven. This is an excellent dish for breakfast or luncheon.

Pickled Oysters.

951. Lay the oysters on a sieve to drain the liquor from them; leave it to settle, then pour off the clear portion, and boil it up well with pepper, salt, mace, and ginger to the taste; then wash the oysters well in several waters to remove all the slime, and give them one boil up in the liquor.

To Smoke Hams or Tongues.

952. They should be submitted to the smoke from broom-tops, or oak-sawdust, in a close chamber, or suspended in the chimney of a farm-house where wood is burnt for a few days. Bacon-dealers profess to smoke in the former mode for their customers, but they generally have recourse to the following plan, which costs much less money and little or no trouble, while it gives the bacon a very rich colour, and pleases the eye if not the palate:—

To Imitate the Flavour of Smoking.

953. Take the *brown* pyroligneous acid, and with a strong paint-brush rub it over the whole two or three times, according to the degree of flavour desired. This answers remarkably well for broiled bacon or ham, but when soaked or boiled the acid is partially removed, and with it the flavour is in great measure lost. The same process answers equally well for dried fish, making it taste as if kippered.

To Keep Hams, Tongues, &c.

954. The best method is to brush over the whole of the cut parts with a paste made of quicklime and water, which will effectually keep out the flies; but it will not readily wash off before dressing, and therefore there is some little waste. Next to this, and without the above objection, is the plan of sewing up the hams, &c., in canvas cloths, by which the flies are wholly prevented from reaching the meat. In any case the bacon or ham should be hung in a dry but cool room, away from the kitchen fire, which soon makes the fat rancid. There should be a thorough ventilation, without draught. Where there is no convenience for hanging, the bacon should be laid in wood-ashes, enough of these being introduced to fill up all the vacant space.

To Keep French Beans.

955. Let the beans be gathered quite dry and not too old, put a layer of salt in the bottom of an earthen jar, then a layer of beans, then salt, then beans till you have filled the jar, a layer of the salt being at the top. Tie a piece of leather over them, lay a flag at the top, and put in a dry cellar for use.

Another way.—Make a solution of salt in water strong enough to bear an egg, and when it boils put in the French beans for five or six minutes, then lay them on a sieve, put to the salt and water a little bay-salt, and boil it ten minutes, skim it well and pour it into an earthen jar to cool and settle, put the French beans into narrow topped jars and pour the clean liquor upon them; tie them close down that no air can get in, keep them in a dry place.

N.B.—Steep them in plenty of spring water the night before you use them, and boil them in hard water.

To Keep Green Pease.

956. Shell any quantity of green pease, and just give them a boil in as much spring water as will cover them, then put them in a sieve to drain; pound the pods with a little of the water that the peas were boiled in, and strain what juice you can from them; boil it a quarter of an hour with a little salt, and as much of the water as you think will cover the peas. Then fill a wide-mouthed bottle and pour in the water; when cold put rendered suet over, and tie them down close with a bladder and leather over it, and keep the bottle in a dry place.

Sect. 6.—Pickling in Vinegar.

957. Remarks.—This section comprises those vegetables which are preserved in vinegar, to be eaten with savoury meats, or used as additions to such dishes. Also sauces of a similar character, in which the vegetable compounds are dissolved in vinegar. Besides which will be found the modes of preparing other flavouring compounds which are required for general use. All pickles which are to be green must be done in the following manner: lay them in a preserving-pan, with layers of vine leaves between; then cover them with vinegar, and let them remain on the fire till quite green, but do not allow them to boil.

958. Pickles are prepared from vegetables, fresh, salted, or dried,

and mixed with vinegar, which should be of the best common kind or distilled (see page 149). The safest vessels to use for boiling vinegar are those of enamelled iron; a slight oxidation may arise from the action of the vinegar upon an iron vessel, but not sufficient to be dangerous. Acetic acid dissolves the lead that is used in the tinning of saucepans. Pickles should never be put into glazed jars, as salt and vinegar dissolve the glaze which is poisonous. The jars in which they are kept should either be of stone or glass. They should be closely covered, and have a wooden spoon, with holes, to take them out of the jar; all metals being improper. They should be well kept from the air, and the large jars should be seldom opened, and the top closely covered. Those pickles in common use for the table are best kept in the ground-glass stoppered pickle-jars, which retain the vinegar without difficulty. It is necessary that the pickles should be always entirely covered with the vinegar; examine them frequently, and if any symptoms of mould appear, remove the part affected and boil the vinegar again with additional spices. When vinegar is added to old pickles, boil it, but let it stand to be cool before it is poured over. When first pickles are made, the vinegar should be put over them boiling. Of all pickles, perhaps, red cabbage is the most wholesome; it is frequently made of unboiled vinegar, merely poured over the cabbage which has previously been salted.

To Pickle Nasturtiums to be used instead of Capers.

959. Boil some very good vinegar with some mace, white peppercorns, and a little salt. Put it into a jar, and when cold, put in the nasturtiums as soon as gathered. Keep them closely tied down, and they will be very green and crisp.

Pickled Beetroot.

960. Boil some beetroots tender, and pare and slice them; then boil as much vinegar as will cover them, with some mace, cloves, and peppercorns. Pour this over when boiling, and cover it close.

To Pickle French Beans.

961. Put the beans in salt and water two days; drain and dry them; then pour boiling vinegar over, letting it stand three days. Pour the vinegar off, and repeat the boiling, letting it stand on the beans for three days more; then boil all together.

To Pickle Gherkin Cucumbers.

962. Pick the roughest, and make a strong brine of salt and water scalding hot; put them in, and cover them close. Let them stand twelve hours; then take boiling distilled vinegar, and put them in it; let them simmer, not boil, for half an hour; then put them in a pan, and keep them *close* covered with vine-leaves, and a cloth at the top. Should they not become sufficiently green, change the vine-leaves, and heat the vinegar again; repeat this till they are so.

To Pickle Lemons.

963. Scrape twelve lemons with a piece of broken glass; cut them across in quarters, not quite through. Give them as much salt as they will hold, also rub and strew it over them, and let them lie in an earthen dish three or four days, turning them every day. Then take twelve cloves of garlic, parboiled and salted three days, a large spoonful of flour of mustard, and some Cayenne pepper, to every lemon. Take the lemons out of the salt, and put them in a jar with the spice, covering them with the best vinegar. Keep them very close, and they will be fit for use in a month.

Another.—Rasp the outside of some lemons very sparingly, put them in salt for ten days, turning them every other day. When taken from salt have ready enough boiling vinegar to cover them in a deep vessel; and after a few hours, pour it off; then, having spiced some fresh vinegar with the following ingredients, cover the lemons with it; viz., twelve cloves, twelve shalots—and horseradish, mustard-seed, Cayenne pods, black and white pepper corns, of each a quarter of an ounce to the pint.

To Pickle Mushrooms Brown.

964. Take a quart of large mushroom buttons, wash them in vinegar with a flannel, take three anchovies and chop them small, a few blades of mace, a little pepper and ginger, a spoonful of salt, and three cloves of shalots. Put them into a saucepan with as much vinegar as will half cover them, then set them on the fire, and let them stew till they shrink pretty much; when cold put them into bottles with the vinegar poured over them, cork and tie them close up; this pickle will make a great addition to brown sauces.

To Pickle Mushrooms White.

965. Put them into equal quantities of cold milk and water, and rub

them with a flannel; have ready hot milk and water, and boil them in it a few minutes, take them out with an egg-slice, and put them into a jar with a little salt, cover them close up with a cloth; let them stand till next day, then boil up the vinegar and pour over them.

To Pickle Walnuts.

966. Lay one hundred walnuts in salt and water for six days, changing the water once; put them dry into a jar with a quarter of a pound of bay salt, a quarter of a pound of ginger, a quarter of a pound of black peppercorns, half a pound of shalots, half a pound of mustard-seed, half an ounce of cloves, half an ounce of mace, two sticks of horseradish, and one pound of anchovies. Boil one gallon of the strongest pickling vinegar, and pour over them hot. Cover them with a pewter plate till cold, then add to them a bottle of port wine, and tie them down close. The jar should not be opened for two or three months. (The anchovies and wine may be omitted if too expensive.)

Pickled Onions.

967. In the month of September, choose the small white round onions, take off the brown skin, have a stewpan of boiling water ready, and then throw in as many onions as will cover the top; as soon as they look clear on the outside, take them up as quick as possible with a slice, and lay them on a clean cloth, cover them close with another, and scald some more and so on. Let them lie to be cold, then put them in a jar, or glass, or wide-mouthed bottle, and pour over them the best white pickling vinegar, just hot, but not boiling. When cold cover them; should the outer skin shrivel, peel it off. They must look quite clear.

To Pickle Spanish Onions.

968. Let the onions remain twelve hours in salt and water; boil white vinegar with capsicums, cloves, whole pepper, and allspice; let it remain till cold, then drain the onions well, put them in jars, and pour the pickle over them.

To Pickle Red Cabbage.

969. Slice it into a colander, and sprinkle each layer with salt; let it drain two days, then put it into a jar, with boiling vinegar enough to cover it, and put a few slices of beetroot. Observe to choose the purple-red cabbage. Those who like the flavour of spice will boil

some peppercorns, mustard-seed, or other spice, *whole*, with the vinegar. Cauliflowers cut in branches, and thrown in after being salted, will look of a beautiful red.

For Mixed Pickles.

970. Prepare any vegetables you like by cutting them in pieces, and let them lie in salt and water for two or three days; then make the pickle in the following manner:—Boil the quantity of vinegar required with peppercorns, mustard-seed, a small quantity of mace, a few Cayenne pods and ginger, and half a pound of flour of mustard mixed smoothly in a basin, to be put in while boiling; put all together in a large stone jar.

Pickled Eggs.

971. Boil eggs very hard, peel them, and put them in cold water till very cold; have ready a strong pickle of white-wine vinegar, with a little mace and whole pepper in it; put them in while it is quite hot, and stir, that they may all look alike; do not cover the pot till they are brown. Put them into a jar, and they will be ready in nine or ten days.

Indian Pickle.

972. Take one pound of ginger; let it lie in water one night; then scrape and cut it in slices; put it into a pot with dry salt, and let it stand till the other ingredients are ready. Peel and cut in pieces one clove of garlic, and salt it for three days, putting it in the sun to dry, then throw it into a gallon of vinegar placed in a strong jar, which must not be more than three parts full; add to it a pound of bruised mustard-seed, and some salt dried in the sun, half an ounce of powdered turmeric, half an ounce of long pepper, half a pound of flour of mustard, half a pound of shalots, a few cloves, and a little mace; stir all together. Whatever articles are to be pickled must be dried in the sun. The cauliflowers must be scalded in a strong brine, and then peeled; cabbage cut in; celery and radishes scraped; French beans and asparagus salted, and then scalded in salt and water, and dried in the sun. In this way all sorts of fruits or greens, as they come in season, may be added. As the vinegar wastes add fresh.

Another Indian Pickle (most excellent).—Mix a packet of curry powder with as much mustard, add four large roots of garlick, half a pint of salad oil, one ounce of chilis, three long pepper pods, three cloves,

one spoonful of allspice, and half a gallon of vinegar. Boil all together, first putting the roots in a Dutch oven for five minutes. It will be ready for use in a month.

Another (very good).—Take curry powder and mustard, of each four ounces; garlic, four large roots; salad oil, half a pint; chilis, one ounce; long pepper and cloves, of each three ounces; allspice, half an ounce; boiling vinegar, two quarts. Mix. The cauliflowers, cabbage, &c., are to be prepared as in the above receipt, and then to be put in a Dutch oven before the fire for five minutes, after which they are to be added, and they will be fit to eat in a month.

Permanent Sauces, Ketchups, &c.

973. These articles merely require to be kept in glass bottles, well corked, with which precaution they will keep many years.

Walnut Ketchup.

974. When walnuts are in a fit state to pickle, have a quantity pounded to a pulp, sprinkle them with a little salt, and let them remain until the following day, then press the juice from them and let that stand to settle; pour off the clear, and boil it half an hour. Then measure it, and to each quart put one pound of anchovies, and boil it gently for an hour, strain the anchovies from it and let it settle again; pour it from the sediment and put to every two quarts one pound of shalots, peeled, two ounces of cloves, two ounces of white peppercorns, one ounce of mace, a little Cayenne, one ounce of ginger, and the juice of a lemon (the whole of the spice is better if slightly bruised); let it simmer slowly until it has obtained the flavour, bottle it, and let it be well corked and sealed. It will keep many years.

975. *Another, but more Expensive Method.*—Take three hundred walnuts, pound them very small, adding two pounds of salt; when pounded, add one quart of vinegar, let it stand for four days, then press it through a hair cloth, and to each quart of juice add half a drachm of cloves, half a drachm of mace, half a drachm of nutmeg, and half a drachm of black pepper; and, in addition, one tea-spoonful of Cayenne pepper, half a pound of anchovies, six onions, and twelve shalots, with three or four cloves of garlic. The juice must be boiled and skimmed till quite clear; then bruise the spice, put it in, and let it boil full half an hour, adding one quart of port wine to every

gallon; let it stand till cold; then pour off the clear liquor into the bottles, putting into each bottle a few shalots, mace, and cloves; cork it up, and keep in a dry place.

Mushroom Ketchup.

976. Put plenty of salt on large flat mushrooms, and let them stand for a few hours, then mash them well, and let them stand two days, stirring occasionally; press through a colander, and put all but the thick parts into a saucepan; boil and skim an hour, strain, and put it aside until the next day; then pour the liquor from the sediment, and to each quart add one ounce of black peppercorns, half an ounce of allspice, and the same of ginger; boil slowly until reduced nearly one half; when cold bottle it.

Cucumber Ketchup.

977. Take full-grown cucumbers and a third part of their weight of onions; pare and slice them; salt them well, and in twenty-four hours squeeze and strain them; to a quart of juice add a quart of white wine, and to every two quarts of liquor add three-quarters of a pound of anchovies, white pepper, mace, a stick of horseradish, and a good quantity of grated nutmeg; boil all together until the anchovies are dissolved; then strain it, and cover both till cold, when the spice should be again put into the ketchup and bottled. It will keep for years; a small quantity will flavour all white dishes without injuring the colour.

Prince of Wales's Ketchup.

978. With ripe elderberries fill what sized jar is required, and add as much vinegar as the jar will hold; put it into an oven after the bread is drawn, and let the jar remain there all night; run it through a jelly-bag, and to every pint of juice put two ounces of anchovies, the same quantity of cloves, mace, ginger, and nutmeg; let it boil till the anchovies are dissolved and the liquor has thoroughly partaken of the taste of the spice; when cold, bottle it for use, and keep it in a cool place.

To Make Oyster Ketchup.

979. Open one hundred oysters, and preserve all their liquor; add to them one pound of anchovies, three pints of white wine, and one lemon sliced, and half the peel; let this boil gently half an hour,

then strain it through muslin, add to it cloves and mace, a quarter of an ounce of each, and one nutmeg; let it boil a quarter of an hour more, then add to it two ounces of shalots. When cold, bottle it with the spice and shalots. This is rather expensive, but it gives a delicious flavour to white gravies and sauces, such as those for minced veal, boiled fowl, &c.

Cockle Ketchup.

980. Open the cockles, scald them in their own liquor; add a little water when the liquor settles, if there is not enough: strain through a cloth, then season with every savoury spice: and if for brown sauce add port, anchovies, and garlic, and burn a bit of sugar for colouring: if for white, omit these, and put a glass of sherry, lemon-juice and peel, mace, nutmeg, and white pepper. It is better to have cockles enough than to add water. Nearly as good as the oyster ketchup, but rather stronger in flavour, and used for the same purposes.

An Excellent Sauce for Chops.

981. Pound fine an ounce of black pepper, and half an ounce of all-spice, with an ounce of salt, and half an ounce of scraped horseradish, and the same of shalots peeled and quartered; put these ingredients into a pint of mushroom ketchup or walnut pickle, let them steep for a fortnight, and then strain it. A tea-spoonful or two of this is generally an acceptable addition, mixed with the gravy usually sent up for chops and steaks; or added to thick melted butter.

Another.—Two wineglasses of port and two of walnut pickle; four of mushroom ketchup; half a dozen anchovies pounded, the like number of shalots sliced and pounded; a table-spoonful of soy, and half a drachm of Cayenne pepper; let them simmer gently for ten minutes, strain it, and when cold put it into bottles; well corked and sealed over, it will keep for a considerable time.

Plain Tomato Sauce.

982. Put tomatoes, when perfectly ripe, into an earthen jar, and set it in an oven, when the bread is drawn, till they are quite soft; then separate the skins from the pulp, and mix this with half the quantity of capsicum vinegar and a few cloves of garlic pounded. Add a little powdered ginger and salt. Some plain vinegar and Cayenne may be used instead of capsicum vinegar. Keep the mixture in small wide-mouthed bottles, well corked and in a dry cool place.

Compound Tomato Sauce.

983. Add to one gallon of bruised tomatoes eight ounces of common salt, and let them stand three days, then squeeze out the juice, to which add four ounces of shalots, and a quarter of an ounce of black pepper; boil for half an hour, strain, and add mace, allspice, ginger, and nutmegs, of each half an ounce; coriander seed and cochineal, of each a quarter of an ounce. Simmer gently for half an hour, strain, and when cold, bottle.

Flavouring for Fish Sauce.

984. Take walnuts fit for pickling, pound them, and let them stand twenty-four hours, then press the juice from them, and pour off the clear; to every pint of juice put one pound of anchovies, set it over the fire till the anchovies are dissolved, strain it and add an ounce of shalots, a quarter of an ounce of mace, a quarter of an ounce of cloves and of Jamaica pepper, with half a pint of best pickling vinegar; boil it a quarter of an hour, when cold, bottle it for use. A large tablespoonful is enough for nearly half a pint of butter. It will keep good for three or four years. It is very good to put in all brown gravies and hashes. One hundred walnuts will make about a pint.

Anchovy Sauce.

985. Anchovy Sauce is much better, and also cheaper, bought at the Italian warehouses, than made at home.

Sect. 7.—Essences and other Flavouring Compounds.

986. The following list of essences, and other flavouring compounds, should be kept ready for use by all those who profess to carry out their cookery to perfection. Most of them may now be purchased at the shops of the druggists, but they are much better made at home, and require little trouble in the preparation. Some of them, however, require a still; and if such a thing is not at hand, it is necessary to buy them. When it is, the process is exactly that described at par. 459, with the substitution of the articles here named, instead of those specified there.

Tincture of Celery, or Celery Flavouring.

987. Celery seeds, bruised, half an ounce; spirits of wine, two

ounces. Put it into a bottle, and let it be corked, and stand near the fire for three or four days. A few drops will flavour a basin of broth, and greatly improve soups, &c. The seeds ought to be kept for boiling in soups, if the tincture is not approved of.

Essence of Bitter Almonds.

988. Essential oil of bitter almonds, one drachm; proof spirit, seven drachms; mix. Used for flavouring custards, but it must be employed with great caution, as it is poisonous in doses above ten or twelve drops.

Essence of Marjoram.

989. Oil of marjoram, twenty drops; proof spirit, one ounce. Mix. Useful for flavouring gravy.

Essence of Sweet Marjoram.

990. Tops of sweet marjoram, one pound; proof spirit, one gallon; water half a gallon. Steep, and after putting in the still, distil off one gallon. Useful to flavour stews and sauces.

Essence of Carraway Seeds.

991. Oil of carraway, one drachm; proof spirit, four drachms. Mix.

Essence of Citrons.

992. Oil of citrons, thirty drops; proof spirit, one ounce. Mix. A good addition to punch.

Essence of Ginger.

993. Bruised ginger, one ounce; proof spirit, one pint. Digest and strain.

Essence of Orange or Lemon Peel.

994. Rub the yellow peel of fresh lemons or oranges with lumps of white sugar, and, when saturated, press them into a wide-mouthed bottle, and cork. This is a good way of preserving the flavour of those lemons or oranges which are in ordinary use, being much superior to the dried peel.

Tincture of Orange or Lemon Peel.

995. Orange or lemon peel, sliced thin, four ounces; water six ounces; proof spirit four ounces; digest and strain.

Essence of Peppermint.

996. Oil of peppermint, half a drachm; subcarbonate of potash, one drachm; proof spirit, one ounce. Heat the potash, and add to it the spirit; then decant and mix with the oil.

Essence of Spruce.

997. Take of the twigs of Scotch fir enough to fill the still, pour on sufficient water to cover them, and distil twice over.

Essence of Allspice.

998. Oil of allspice, twenty drops; proof spirit, one ounce. Mix.

Essence of Cinnamon.

999. Oil of cinnamon twenty drops; proof spirit, one ounce. Mix.

Essence of Nutmeg.

1000. Oil of nutmeg, twenty drops; proof spirit, one ounce. Mix.

Essence of Cloves.

1001. Oil of cloves, twenty drops, proof spirit, one ounce. Mix. For sweets and mulled wine.

Or, infuse a quarter of an ounce of the cloves themselves in two ounces of proof spirit for a fortnight, then strain.

Essence of Mace.

1002. Oil of mace, twenty drops; proof spirit, one ounce. Mix. Useful for flavouring sweets and white sauces, or mulled wine.

Or, Proceed as for essence of cloves.

Essence of Savoury Spices.

1003. Black pepper, one ounce; powdered allspice, half an ounce; grated nutmeg, quarter of an ounce; proof spirit, one pint. Mix, and steep ten days, then decant. Useful for flavouring savoury dishes.

Tincture of Cochineal.

1004. Cochineal, ten grains; proof spirit, one ounce. Mix in a glass bottle, and steep. The cochineal, unless powdered, takes a long time to dissolve, and the bottle must be frequently shaken.

Sect. 8.—Drying.

1005. This process is very simple, when not complicated with sugar, salt, or other preservative materials. It is conducted either in the sun, or the shade, or by the agency of a stove, or of a clean frying-pan.

1006. All Herbs ought to be gathered when they begin to flower, on a dry day, as soon as the dew is off. The *tops, leaves, or the whole herbs*, should at once be cleared from discoloured or rotten leaves, screened from earth or dust, placed on hurdles covered with blotting-paper, and exposed to the sun or the heat of a stove in a dry, airy place. The quicker they are dried the better, as they have less time to grow mouldy or ferment; hence they should be spread thin, and frequently turned. When dried they should be well shaken in a large sieve or basket, to get rid of the eggs of insects or other foreign bodies. Almost all herbs, in drying, give out a certain portion of their aromatic properties, residing generally in their essential oil, and hence they should not be continued in the sun, or near the stove, longer than necessary. When dry, they should be coarsely powdered, and at once put into wide-mouthed glass bottles, and well corked for future use. In this way, thyme, mint, marjoram, sage, and, in fact, all the pot-herbs may be kept full of flavour for twelve months at least, or even longer if necessary; while if they are exposed to the air hung up in the kitchen, they soon lose almost all their distinguishing and peculiar characteristics.

To Make Mushroom Powder.

1007. Take large mushrooms, peel them, and take out the gills, dry them in an oven or tins, and, when dry, pound them in a mortar.

Another way of making Mushroom Powder. Take the *thickest* large buttons that can be procured, peel them, cut off the stalks, but do not wash them, spread them separately on pewter dishes, and set them in a slow oven to dry: it makes the powder stronger to allow the liquor to dry up in the mushrooms, let them remain in the oven till they will powder, then beat them in a marble mortar and rub them through a fine sieve with a little cayenne pepper and pounded mace, bottle them and keep them in a dry closet.

CHAPTER XII.—DRESSMAKING AND PLAIN SEWING.

SECT. 1.—DRESSMAKING.

1008. This subject has been already alluded to at page 212, where the comparative cost of making dresses at home and abroad is considered. There can, of course, be no doubt that if they can be made by the members of the family or the servants, the saving is complete; but short of this, as before remarked, there is not very much economy in making them at home. With regard to patterns and written instructions for this department, it is, I believe, idle to attempt them, as they require too much actual demonstration to render any written instruction of any avail. Besides this, patterns are so continually changing, that what is written this year is useless the next.

SECT. 2.—PLAIN SEWING.

1009. Plain sewing, like dressmaking, requires actual demonstration to make any instruction efficacious. Every mistress, moreover, is supposed in these days to be able to show the mere plans of hemming, sewing, herring-bone, &c.; and, as in dressmaking, so in this division of female labour, patterns are constantly changing. A shirt appears a very easy thing to make; and so it is, when the pattern is decided on; but no gentleman likes to be compelled to wear one which does not suit him, and will prefer selecting one for himself which in his opinion is the correct thing. All mistresses, therefore, who are called upon to make shirts at home, will act wisely by making their husbands, brothers, or other male dependents on their kindness, decide for themselves what they wish, and choose a single shirt, and then with that one before them there is no difficulty in cutting out more.

1010. THE QUANTITIES required are the only points of information which can be of any service, as this perhaps may be a subject of dispute between the two sexes. The following, therefore, are annexed for the information of the male sex:—*A piece* of linen (shirting) is generally twenty-six yards long and one yard wide, but some shirtings are seven-eighths or three-quarters wide. A piece, as first described, will make eight ordinary shirts, or seven large ones; twenty-one to twenty-five yards of yard-wide calico will make six night shirts, according to the size and length; thirty yards of yard-wide linen or calico will make twelve average-sized chemises; and twenty-four yards will be required for six night chemises. Petticoats are made in such

various styles, that it is difficult to make a calculation; but, on the average, they may be said to take six yards a-piece.

1011. The Repairs of House Linen, as well as the body linen, should be carefully attended to, remembering always that here in reality "a stitch in time saves nine." When sheets begin to wear in the middle, they are generally mended by turning the sides into the middle. In inferior sheets they are originally composed of two breadths, joined at the selvage; and for these the work must be unpicked carefully, and the outside selvages sewn together instead. But when the better kinds of sheeting are used they are of the full width, and in them the sheet must be cut down the middle, and then the two outside selvages sewn together, and the raw edges from the inside hemmed. Small holes ought to be darned as soon as they appear, or even as soon as there is the smallest sign of wearing thin, when either in sheets, pillow-cases, or stockings; a darn will be much more efficacious and neat than after a hole has actually made its appearance. If this kind of early darning is properly carried out, a patch would seldom or never be required on any kind of linen or calico.

1012. Marking is effected in the present day by marking-ink, which is a solution of nitrate of silver, in the proportion of one drachm of the nitrate to three of solution of ammonia, and ten grains of gum arabic. In order to render this indelible, the spot which is to be marked ought to be wetted with a little of the following:—

Gum arabic, one drachm,
Bicarbonate of soda, two drachms,
Water, two ounces. Mix.

When this is dry, use the ink with a *quill pen*, expose it to the air and sun, and iron it before washing. Nitrate of silver used without the soda, is easily taken out by rubbing in a strong solution of the iodide of potassium, or its powder laid on and moistened with water. This salt decomposes the nitrate of silver, and converts it into an iodide, which is perfectly white, and does not therefore show in white linens. It is with this that the London receiver takes out many of the marks in stolen handkerchiefs, &c. The old-fashioned marking is done in cross-stitch, with coloured cotton or thread, or sometimes with a long human hair.

Sect. 3.—Repairs of Boots and Shoes.

1013. The repairs of boots and shoes, by means of gutta percha, may be effected with great facility at home, and with a considerable

saving. This is particularly the case with children's out-of-door shoes, for which are required good waterproof soles, capable also of lasting as long as those made of leather. The working of leather is an art which can scarcely be carried out by those who have not served their apprenticeship to it, and therefore any repairs by its means are wholly out of the question, but with gutta percha there is no sewing, and it may be applied to an old worn-out sole very readily by means of a solution sold with it at the gutta percha shops. The new-soling of boys' shoes generally costs about 3s. per pair, and of men's 3s. 6d. to 4s.; but the gutta percha for these may be applied for 9d. or 1s., and in a very few minutes' time. The plan is as follows:—Dry the soles perfectly before the fire, and remove all loose bits of leather and all the dirt adhering to them; then warm them to about 120 degrees, after which, the gutta percha being warmed to the same temperature, the solution is quickly smeared over both the soles and the corresponding surface of the gutta percha, which is immediately to be applied to the sole, and rubbed forcibly backwards and forwards until all the air is expelled and the two surfaces are in close apposition. When this is effected, they must be held together by pressure until cold; the simplest plan being to wind a thick cord round both. Finally, after being quite cold, the edges are trimmed off on a level with the old sole; and if desired to be very neat, they may be polished with a piece of hot metal.

CHAPTER XIII.—WASHING AND CLEANING.

Sect. 1.—Washing at Home.

1014. General Remarks.—Washing at home would, I think, never be attempted, except in very large establishments, if it were not for the saving in point of expense the plan really affords. In some cases, where it so happens that there is a good servant, the result may be satisfactory in point of execution, as well as in cost; and, in general, it is expected that the wear and tear shall be less, which, however, is part of the saving. But if servants are allowed to hurry over their work, the destruction to clothes washed at home is as great as any laundress is likely to cause; so that the mistress must not fancy, the moment that she determines to submit to all the annoyances of a washing-day at short intervals, that her frills will have no little accidents, and her collars last for ever. Nevertheless although, in common

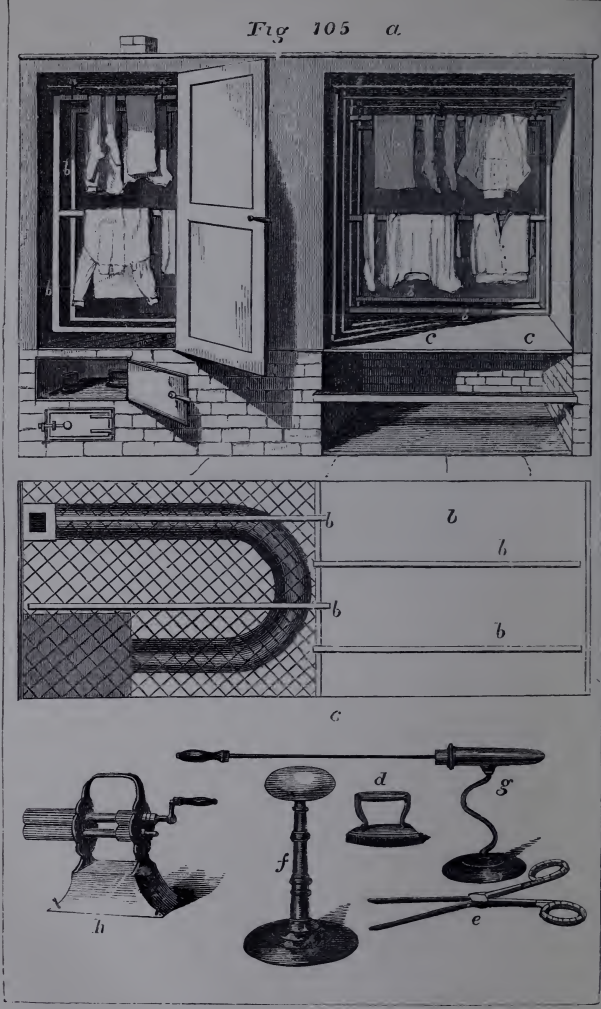
with every one who has felt the annoyance, I dislike the system, yet I am ready to admit that it really is what it professes to be—a decided saving, always in point of actual outlay, and generally in the saving occasioned by the non-destruction of the clothes, which is the result of the adoption of improper methods of washing. Washing machines, caustic alkalies, wringing machines, bad drying, &c., all are injurious to clothes, which, when they require rubbing, can scarcely suffer so little injury from any thing as from the human hand; and in their drying will never be so sweet and clean as when dried in the open air. The American washing-machine, as described below, at par. 1022, appears to be an exception to this rule; but it is as yet a "new broom," and it may at last prove to sweep not quite so clean as it is said to do, though I believe it to be a most ingenious invention.

Utensils.

1015. The Utensils necessary for home-washing are—1st, a *copper*, sufficiently large to boil water for the wash; 2nd, *washing-tubs*, also in proportion; 3rd, *posts*, *lines*, *props*, and *pegs*, for drying out of doors; 4th, a *hot-closet*, for drying in-doors; 5th, the *materials for ironing*, consisting of an *ironing-board*, *iron-cloths*, an *ironing-stove* and *irons*, *flat*, *egg-shaped*, *gaufering*, and *Italian*, together with a *crimping machine*; and 6th, a *mangle*.

1016. The Copper should really be of that metal, though a galvanized iron boiler will answer pretty well, if it is kept carefully greased at the edges with a little suet, used after every wash. The slightest contact of the rust from this metal is apt to produce iron-moulds, and, in consequence, copper is always employed when the house will afford it. For a small household, a copper of fifteen or sixteen gallons will suffice; but for any moderately large wash, one of thirty or forty is required, not only to afford the hot water, but to contain the things which require boiling.

1017. Washing-tubs are either circular or oval, or in the form of a parallelogram, in which last case they are called trays. Circular tubs are the cheapest, but are not so convenient; oval tubs come the next in cost and in durability, both being made of oak; while the trays are more costly in the original outlay, and from the nature of their formation and their material (deal), are much more liable to decay. The round tubs cost from 6s. to 12s. each, the oval from 9s. to 16s. each, and the trays from 10s. to 18s. each.



VIEW AND PLAN OF HOT CLOSET AND IRONING TOOLS.

1018. Posts are either permanent or moveable. In either case they consist of wooden posts, about eight feet high from the ground, and four inches in diameter at the bottom, diminishing to three at the top, where there are four cross pegs to fix the lines. They are fixed in the ground as ordinary posts, or let into sockets, from which they may be removed at pleasure. The *line* is either of flax, or hair, or gutta percha, the hair being the best in every respect. A *prop* is required in the interval between the posts, about ten feet long, with a fork at the top, which catches hold of the line after the clothes are on. Lastly, the *pegs* are wooden, and are made to confine the clothes to the line, There are three kinds: the English clothes-peg, with a tin-ferrule; the American, made without the ferrule; and the improved American, which has a brass spring, and which lays hold more tightly than the others, but is apt to stain the linen, from the brass wire becoming covered with verdigris.

1019. The Hot Closet is a substitute for the drying-ground, either in case of wet weather, or to be used for those articles which will not bear the sun. It consists of a chamber heated by means of a stove, with a current of air maintained through it and passing out at the top. Iron pipes are sometimes used for the purpose, but a brick flue, similar to that constructed for green-houses, is the best, and gives out quite sufficient heat for the drying of any number of home-washed articles. Two plain brick chambers are built, about eight to twelve feet square, and divided by a thin iron partition, in which are narrow slits at intervals of a foot, just high and wide enough to allow "a horse" to travel backwards and forwards through them. One of these chambers (see *fig.* 105 A) has a furnace and flue in it, beginning at one end and returning to the same side, where it passes out in the ordinary way. Above this flue, and separated from it by a wire-grating, is the chamber for the horses (*b b b b b*), which are suspended from irons attached to the ceiling, and can be dragged out into the outer chamber through the slits in the partition. These horses run best suspended on the same principle as the doors shown at *figs.* 30 and 31, but made of common smith's work, and at a very cheap rate. When it is intended to be used, the flue is lighted, and a damper at the upper ventilator is closed, so as to allow the heat to be retained. As soon as the chamber is heated, the horses (*b b b b b*) are drawn out upon the table (*c c*) in the outer compartment, where they receive their clothes, and are then pushed into their places. The dampers are next all thrown open, and the fire burns fiercely, causing a great heat to be radiated from the

flue, and a large quantity of air to enter and pass through the drying-chamber. When the laundry-maid finds the clothes are sufficiently dry, she draws out each horse in succession and takes them off, folding them at once on the table, and replacing the horse, either with fresh wet clothes on or not, as she may have occasion. In the figure, two of these horses are shown drawn out, and two in their places. In this way a "wash" is soon dried, and on the following day the board (*c c*) serves as an excellent ironing-table, while the stove is easily constructed so as to heat the irons.

1020. The Ironing-board is either provided for as above, or it is made by the carpenter in a separate form, to be placed upon any table. In this case it ought to have cramps to confine it in its place, as a rickety board is a great hindrance. The cloths consist of a thick flannel made on purpose, called swanskin, with another under it to afford support; and sometimes, for fine things, on the top of all a smooth holland. The irons are those known as the flat-iron (*fig.* 105 D), the egg-iron (*fig.* 105 E), the gaufering-iron (*fig.* 105 F), and the Italian-iron (*fig.* 105 G), which will be readily recognized. Besides these is the crimping machine (*fig.* 105 H).

1021. The Mangle is a machine by which washed articles rolled round wooden rollers, and protected by a linen cloth, are submitted to great pressure. In the ordinary mangle, a wooden box filled with heavy stones, and about eight feet by three feet, is moved backwards and forwards by a peculiar yet simple arrangement, over two rollers, with the clothes to be mangled encircling them, and laid on a strong bed of wood smoothly planed. The box is first moved in one direction, and lifted by continuing to turn the handle; the roller is then placed on the bed, and the box dropped upon it, when, by reversing the action, it passes over the roller as far as its length will allow it, and if necessary liberates the other at the end of its action, when it also may be replaced or not. In a few turns backwards and forwards the clothes are mangled, that is, they receive a polish from the extreme weight. Table-cloths, sheets, and all flat articles without plaits are thus made to receive a tolerably high gloss. Sometimes, however, the premises are not large enough to receive such an unwieldy machine, and for this several smaller ones have been invented, acting by means of a spring, or some other substitute for the weight. Of these, Kent's patent portable mangle (*fig.* 106) is the best, though still I believe somewhat inferior to the old-fashioned machine. In it the bed on which the linen is mangled is not a fixture, as in the ordinary mangle, but it traverses

Fig 106

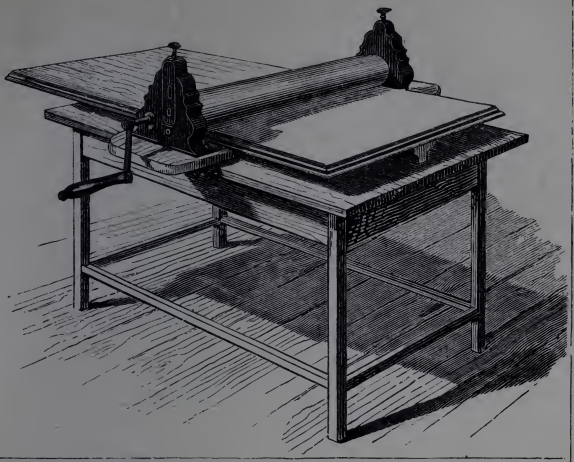


Fig 107

Fig. 106. KENT'S MANGLE, AND *Fig.* 107. AMERICAN WASHING MACHINE.

backwards and forwards, whilst the roller on which is the linen remains stationary. The pressure is obtained by means of springs adjusted by a screw, and the roller is either of metal or wood. The figure shows the machine on an ordinary table; but when taken to pieces, it consists of the bed, (also useful as an ironing-board, and occupying no more space,) and also of the roller and works, which require a box two feet eight inches long and one foot square. The price is, with metal roller, £5 10s., or with wooden roller, £4 10s.

1022. Several Washing Machines have been invented in this country, which profess to supersede the use of manual labour; but I do not believe that they can effect this with advantage. Even the "dolly," which is very generally used by washerwomen, injures the clothes, and cannot compare with the human hand. But an exceedingly ingenious washing-machine has been recently invented by a farmer of Indiana, United States, and patented by a Mr. Moore, who sells it at 133, High Holborn, under the name of the American Floating Ball Washing-Machine; the price being from £3 to £10, according to the size. It is suited to all kinds of fabrics, and the object is to dispense with the great amount of mechanical labour which is now so necessary in the old plan. The essential characteristics of the invention consist in the employment of floating balls, 200 or 300 of which are put into a wooden trough (*fig.* 107 A), two or three feet long by fifteen inches wide, containing water or soap-suds, in which, of course, they float. The balls are about the size of an orange, and made of elm wood. A fulcrum is fixed at the back of the trough, having a cross-beam (B) working in it, resembling a common pump handle. Suspended to this handle is an apparatus like a small window-sash and frame, hanging immediately over the mouth of the trough, and capable of being immersed in it. To this the clothes to be washed are fastened in a mass—the more the better, the contrivance for the purpose being very simple, and exactly as if they were placed on the window-sill, and between it and the sash, where they are confined by the agency of smooth wooden teeth. At the extreme end of the beam, on the opposite side of the fulcrum to that where the clothes are attached, is a box (C), into which a weight may be put, so as slightly to counterbalance the frame and clothes, and raise it into the air as soon as it is set free. This being all arranged, the beam-handle is moved up and down, as in pumping water, the effect of which is to depress the frame with its clothes among the balls in the suds, and move it about among them, the weights restoring it to its original position.

The balls produce a gentle friction upon the linen, which, without in the slightest degree injuring its fabric, or breaking or tearing off buttons, effectually removes all the dirt in an incredibly small space of time. The labour required for an ordinary home-washing machine is not more than can be afforded by a child of twelve or fourteen; and the action on the clothes imitates very closely that of the human hands in pounding, scrubbing and squeezing; and as there is no solid resistance afforded, but only that given by the floating balls, there is scarcely so much injury by friction as in the washing by hand. In using it, the fingers are not kept constantly wet, as in ordinary washing, but only as much as is required to immerse the linen, and remove it from the frame. Altogether, it is an exceedingly simple and ingenious machine; and, as far as my judgment goes, it appears likely to be of great use, not only in private families, but in public laundries, in many of which it is already employed. Its projectors profess that the size for private use will do a day's washing with ease in two hours; and that the large-sized machine will wash six thousand towels, or other similar articles, per day. But as practice is not always found to coincide with theory until it has stood the test of a full trial, I should till then advise the adherence to the old method of using a washerwoman's thews and sinews, aided only by a common wringing-machine, which lays hold of the heavy articles, such as sheets, counterpanes, &c., and by turning a handle does that easily which the strongest woman can hardly effect with the whole power of her arms. Whitelock's patent wringing machine is the best for the purpose.

1023. With these utensils, together with soap, starch and blue, already described under the 15th chapter of the last Book, the laundry-maid proceeds to the operations of her first day, which is generally called the washing-day. Five distinct periods are required in all washes—1st, the *washing and bluing;* 2nd, the *drying;* 3rd, the *starching;* 4th, the *folding;* and 5th, the *ironing and mangling.*

1024. The Washing generally requires the aid of a woman who goes out for this express purpose, and hence is called a washerwoman; receiving from 1s. to 2s. 6d. a-day, according to the custom of the place, together with plenty of eatables and drinkables. This woman, with or without aid, washes all the clothes according to her own plan, or, if desired, that of her employer; after which they are hung out on the lines, propped from the ground by the props, or in wet weather they are dried in the drying-closet. When dry, they are brought in, and those articles which are to be starched are dipped in the material,

while the others are sprinkled with water, folded, and put by for ironing or mangling, as may be the nature of the article.

1025. Before Proceeding to Wash, all the things must be carefully looked over and sorted, taking care to tie the pairs together. Articles badly torn should be mended, as a rent begun before the wash is sure to be increased by scrubbing. For washing put out, an inventory is always taken; but for home-washing this is scarcely necessary. All stains should be now attended to, using the proper applications for each kind. The house-linen, body-linen, coloured things, and flannels are all washed separately, and must therefore be sorted apart. Coloured things should not remain in the sun, but all white articles are the better for being submitted to his rays, as long as the weather continues fine. The following methods are adopted in the families of different ladies who are good managers, and each of whom expresses a confident opinion on the superiority of her own.

Plan of Washing Found to Answer Admirably.

1026. Take one pound of yellow soap, and three ounces of Green's patent washing powder (made at West Bromwich), dissolve in two quarts of water, and boil to a jelly. Add this quantity to twelve gallons of cold water in the furnace, then put the finest of the clothes into the water while cold, heat the furnace and allow them to remain till they have really boiled for half an hour. Take them out and rinse them twice, that is, in two clear waters. In taking them out of the furnace, lay them in a narrow-bottomed basket over the furnace, that the water may drain back into it, before putting them into clear water. After rinsing them the first time, pour the water back into the furnace to boil the second lot of clothes in, and let the second water be used for the first rinsing of the next lot of clothes, and so on, bluing each lot after being rinsed twice. When the water in the furnace becomes too weak, add three-quarters of a pound of soap and one ounce of the washing-powder, boiled to a jelly, as before. If the wrist-bands, or any part of the clothes, are very dirty, rub a little soap on, and soak them one or two days beforehand. They must be carefully looked over when in the first rinsing tub, and any dirty places washed out and rinsed again. If the furnace is small, a less quantity of soap and soda must be used. This plan requires a plentiful supply of water, and spring or river water is better than rain water, on

account of the rinsing, unless the latter is completely purified by filtration.

Recipe for Washing Forty Dozen of Clothes.

1027. The flannels, woollen socks, and coloured things to be washed first in the old way, and not counted.—Two days before the wash, take two and a half pounds of quicklime, pour one gallon of boiling water on it, and in a short time add a little cold water to make the lime settle; let it stand twenty-four hours, then skim, and pour it clear from the sediment. In this solution, which will be about three quarts, boil two and a half pounds of washing soda, and the same of pale yellow soap, the soap to be cut in slices. Boil it till all is dissolved, then pour it into earthen vessels to cool into a paste, which must be done the day before the wash. The clothes having been previously soaked all night, are to be looked carefully over, and the wristbands, collars, or any stained part, rubbed by hand in plain hot water, then put to boil, loose, in the copper with as much of the paste as will make a good strong lather; if any scum rises it must be taken off. The clothes are to be boiled half an hour, then "dollied" a short time, and well rinsed in two waters; linen things should be rinsed a third time in spring water, with a little blue in it. The remainder of the paste is put in the copper as it is filled up with water for use. This plan makes the clothes, particularly the calicoes, a beautiful colour, and is found not to wear them out so much as the old plan.

Coloured Things.

1028. When there are many coloured things, dissolve half a pound of soap into the water to make a lather, instead of rubbing soap on them. And to Wash the Flannels and Worsted Stockings, make a good lather of yellow soap and warm, not hot, rain water. Rub them, and put very little soap upon them. Wash them in this way in two waters, and then in a clear lather, with a little blue in it. Squeeze them in a cloth, and shake them well. Pull the stockings out from time to time, as the more they are shaken the softer they will be.

American Washing Machine.

1029. In using this machine, described at par. 1022, the clothes, unless very dirty, merely require soaking for about half an hour. They are then folded roughly, into such a compass that they will not extend in width more than nine inches or a foot, and in length not

beyond the frame in which they are to be placed. A shirt, therefore, must be folded up about twice, after which it is placed in the frame, and this will hold at least a dozen shirts at a time, or perhaps more, as wetted clothes lie extremely close. The frame is then closed by a screw and dropped into the suds, prepared according to either of the receipts given at 1026 and 1027, or merely with soap and water, and with the balls occupying almost the whole of the space, and not simply floating at the top. As soon as fixed in this frame, the clothes are moved up and down among the balls for a few minutes (about three), and then they are taken out of the machine and rinsed as usual in clear water; after which the bluing is to be done according to page 402. When the clothes are *very dirty indeed*, they require boiling as well as "balling" in the machine; but this is said to be very seldom necessary. Very large articles, such as thick blankets, or heavy counterpanes, may be folded in halves and put in, one-half at a time, the other half hanging over the side of the trough. With the aid of this machine, I am told, that any family washing may be easily managed without any extra assistance in the shape of a regular washerwoman, so that the prime cost would be saved in the first year, or very nearly so. From the nature of the mechanical force applied, I am inclined to believe that the injury to the fabrics is really less than by the human hand.

Printed Dresses.

1030. The following instructions for washing printed dresses are exceedingly valuable:—Take about one pound of bran, secure it in a gauze or muslin bag, boil it in a pailful of soft water, and when the dresses have been washed briskly in this water (which should not be used scalding hot), very little, if any, soap-water washing will be necessary; yellow soap should not on any account be used, nor soda, pearlash, &c. Printed dresses should not be washed with the body-linen; and a most important advantage will be derived from a plentiful rinsing in clean pump or river water, and drying in the open air in the shade; or if in a room, at a distance from the fire.

Another Method of Washing Coloured Dresses.—Have ready plenty of clean soft water; it spoils coloured dresses to wash them in the dirty suds left after white clothes are done, though this is a very common practice with bad washers. The water must be warm, but by no means hot, lest it injure the colours. Rub soap enough into the water to make a strong lather before putting in the dress (adding a

table-spoonful of ox-gall), and then wash it well; have ready a large earthen pan, filled with a little weak starch tinged with blue; printed lawns or muslins will be much improved by mixing a little gum arabic water with the starch—for instance, a table-spoonful; put the dress into it, and run it through the starch; then squeeze it out, open it well, clap it, and hang it immediately out to dry in the shade, taking the sleeves by the cuffs and pinning them up to the skirt, so as to spread them wide and cause them to dry the sooner. If coloured clothes continue wet too long, no precaution can prevent the colours running into streaks; this will certainly happen if they are allowed to lie in the water; they must always be done as fast as possible, till the whole process is completed; if the colours are once injured, nothing can restore them; but by good management they may always be preserved, unless in coarse low-priced calicoes, and many of them wash perfectly well. As soon as the dress is *quite dry* take it in; but unless it is wanted immediately do not sprinkle it, lest in lying damp the colours should be impaired; it is always the best way, however, to fold and iron it immediately.—Another way of fixing the colours in a dress is to grate raw potato into the water in which the dress is washed. If dresses are to be put by for the winter-season they should always be washed and dried, but not starched nor ironed; they should be rolled up closely in a towel. Mousseline-de-laine, merino, or any dresses of woollen fabric, should be taken from the bodies, well brushed, and washed in two clean lathers; the water should be pressed and shaken out, and the dresses then rolled tightly up in a large dry cloth to absorb the remainder of the water; they should then be pulled straight, dried quickly in a shady place, and ironed with a cool iron immediately.

To Prevent Silk Handkerchiefs Losing Colour.

1031. Dip them, or any other coloured silk article, into salt and water *before* they are washed, which will preserve the colour (a small handful of common salt in a wash-hand basin of water).

An Admirable Method to Wash Lace.

1032. Soap each piece well, and (if *dirty*) lay it in cold soft water over night, then work the soap out by squeezing it occasionally, dipping and squeezing it again. Change the water two or three times, repeating the soaping and squeezing; and put it (again fresh soaped) into a saucepan of cold water to simmer for a quarter of an hour or so.

boil it twice over if necessary, and if still a bad colour, bleach a little on the grass before finishing. Rinse it in plenty of hard water, with as much blue as will suffice. Then take about twelve lumps of sugar (more or less, according to the quantity of lace), and dissolve it in about a tea-cupful of hot water in a large basin with a little blue; dip each piece of lace, &c., in separately, and squeeze, taking first those which require to be stiffest, and afterwards shake them out and spread upon a clean cloth; roll them up for an hour or more, then put them into a fresh clean cloth, to lie rolled up till the iron is ready. Iron with a cool iron.

Another Method of Washing Lace.—Tack it on a bottle with the finest cotton (if the lace is dirty, soap a little on the bottle), cover it over with linen, put it in a bell-metal kettle with cold soft water and sliced soap, stew it two or three hours, drain the bottle and hang it up to dry. If it is wished at all stiff, pin it out on a bed-cover or a cloth, and take a clean fresh-rinsed sponge, dip it in thin gum-water and sponge the lace with it.

To Prepare New Flannel by Shrinking.

1033. Lay the flannel all night in a tub of cold soft water. In the morning pour off the whole of the water, and drain, but do not wring the flannel. Make a light suds of water quite warm (but not hot), and of white soap or whitish Castile. Wash the flannel thoroughly through the suds, and wring it out as dry as possible. Then having shaken it, stretched it, and folded it smoothly down on a clean table to make it straight and even, hang it out immediately. When about half dry, go to it, stretch, shake, and turn it. Take it in while it is still damp, fold it smooth, cover it with a clean towel, and after it has lain half an hour, iron it with a rather cool iron.

To Wash Flannel.

1034. Flannel should always be washed with white soap; otherwise it will neither look well nor feel soft. The water must be warm, but not boiling, as it shrinks flannel to scald it. Wash it in clean water, and entirely by itself. Rub the soap to a strong lather in the water, before the flannel is put in; for if the soap is rubbed on the flannel itself, it will become hard and stiff. Wash it in this manner through two warm waters, with a strong lather in each. Rinse it in another warm water, with just sufficient soap in it to give the water a slight whitish appearance. To this rinsing water it is better to add a little

blue from the indigo bag. Cold rinsing water is found to harden the flannel. When it has been rinsed thoroughly, wring it hard, shake it well, and spread it out on the clothes-line. While drying, shake, stretch, and turn it several times. It should dry slowly. Flannel *always* washed precisely in this manner will look white, and feel soft as long as it lasts, retaining a new appearance, and scarcely shrinking at all. But if *once* badly washed with scalding water, rubbed with brown soap, and rinsed in cold water, it will never again look well.

To Wash Flannel that has Become Yellow.

1035. Boil four table-spoonfuls of flour in four quarts of water, stirring it well. Then pour half the boiling liquid over the flannel, let it remain till the water cools, rub the flannel, but use no soap. Rinse it through several waters, then repeat the process with the remainder of the flour and water in a boiling state; again rinse it through several waters, and hang it up to drain and dry. Do not wring it.

To Wash Black Silk Stockings.

1036. Cut some white soap into thin bits, and boil it in soft water till thoroughly dissolved. Then mix a little of it in cold water, adding a tea spoonful of gall. Having turned the stockings on the wrong side, and rubbed a little of the boiled soap on the dirtiest places, wash them well through the lukewarm suds. Repeat the washing in fresh suds and water, till they are quite clean. Then rinse them through two cold waters, adding to the last a little blue from the blue-bag. Then squeeze them well, stretch them even, and hang them out immediately. While still damp, turn them right side out, stretch and pin them on an ironing blanket, and with the end of a bit of rolled-up flannel, or a smooth stone, rub them hard and quick one way, till they are quite dry, and look smooth and glossy. This is better than to iron them, which always gives silk stockings an old appearance.

To Wash White Silk Stockings.

1037. Make a lather of white soap and warm soft water; stretch the stockings on a table, and with a roll of rough, coarse cloth, dipped in the lather, rub them hard, first on one side, then on the other. Repeat the process with three lathers. Then dip them in three waters to rinse them, and when quite clean hang them up, without rinsing, the wrong side outward. When half dry take them down, stretch and

pin them, the right side out, on a cloth. Do not iron them; but rub them till smooth with a small roll of clean flannel.

Another Method.—Wash them in cold soap and water. In the last rinsing, it is better to put a little archil. Shake them well; roll them in a cloth, and pull them out several times.

To Wash a Book-muslin Dress.

1038 Make some strong suds with white soap and water. Put in the dress, and wash it well; squeezing and pressing rather than rubbing it, as book-muslin tears easily, and, without great care, will not last long. Wash it through a second suds, and then pass it through two rinsing waters; adding *a very little blue* to the last. Then open out the dress; and, while wet, run it through a thin starch, diluted with water either warm or cold. Stretch it, and hang it in the sun to dry. Afterwards, sprinkle it, and roll it up in a clean white towel, letting it lie for half an hour or more. Then open it out, stretch it even, and clap it in the hands till clear all over. Have irons ready and iron it carefully on the wrong side wherever practicable.

To Wash a Counterpane.

1039. Put in to soak over-night in a large tub with lukewarm water, in which has been mixed about a quart of lye, and rub some yellow soap well into it. Next morning, lift it up and down awhile in the soaking water; then wring it out, and put it into a tub of clean soap-suds, and give it a good washing. Then do the same through a second suds, rather hotter than the first, and wring it out very hard. Rinse it through three cold waters; adding to the last a little blue from the blue-bag. Having wrung the counterpane very dry, hang it out in the sun, wrong side outward; taking it in towards evening. Next day hang it out again, with the right side out. It may probably take three days to dry completely. It must on no account be put away with the slightest dampness about it. In washing a quilt or counterpane, never use soda.

Boiling.

1040. Boiling after washing is considered necessary by some laundresses in all cases. Its effect is to extract any remains of dirt left in the preceding processes, and also to take out the soap, whether dirty or clean. Without it, the clothes are supposed to smell disagreeably, and to be of a yellow colour. The water for this purpose

should be clear and soft; and the different articles require different lengths of time—viz., muslins and fine things, from ten minutes to a quarter of an hour; coarse things, for an hour, or more if very thick; calicoes and shirts, for about half an hour. In the processes described under (*a*) and (*b*), the second boiling is said not to be required.

Bluing.

1041. This consists in colouring the last rinsing water very slightly with blue (see page 208), so that the otherwise yellow colour of the linen is got rid of. Care should be taken to avoid using so much as to make the shade too deep, since a decided blue is just as objectionable as a decided yellow. The blue is tied in a small flannel bag, which is dipped in the water and squeezed, so as at once to stain the liquor as it comes out, and also to graduate its shade with greater delicacy.

Starching.

1042. The first thing to be done is "to make the starch," that is, to dissolve *the starch as sold* in hot water, which makes a thick jelly. To make each quantity of this jelly-starch, put into a basin a heaped table-spoonful of the dry starch, or rather more, if the quality is not very good, and rub this down with a little *cold* water till it is of the consistence of cream. When quite smooth, add enough boiling water to make a quart in the whole, and if it does not turn to a thick jelly, put it into a saucepan, and stir it while over the fire until it does. Towards the last, to prevent the iron sticking, it should be stirred two or three times round the pot with a piece of wax or tallow candle; instead of which some people put in a lump of sugar. It is then strained through a piece of coarse muslin, and put by for use when nearly cold. The starch as sold is generally slightly coloured with blue; but if not, the blue-bag must be used by squeezing a little of its contents into the basin. When the things are dry, they are dipped into the starch, wrung out, and dried afresh, or by some people they are, after the starching, dipped quickly into water, shaken, and then dried. Some articles, such as shirts, require to be carefully starched in parts only, and must be therefore dipped to the extent which is to be stiffened, and no further.

Folding.

1043. Folding is necessary before ironing or mangling, in order to get rid of the creases made in the drying. The things are generally

folded in separate sections, dividing the ironing things from those to be mangled; and, in general, ranging all the shirts together, then the chemises, petticoats, &c. Whatever articles are washed with their insides out are now reversed; and if the ironing is to be delayed three or four hours, the things intended to go through that process are sprinkled with water, more or less, according to the weather and their state of dryness. The starched articles require more damping than those which have none.

Ironing.

1044. The blanket is first placed smoothly on the board, then the flat-iron (see *fig.* 105 D) is heated, cleaned, and used, sometimes employing "a slipper" to keep it from dirtying the linen. The ironing-stove, however, prevents much chance of this; but with irons heated at an open fire it saves a great deal of trouble. Any piece of old cloth serves to clean the iron; and to test its heat, a drop or two of saliva are generally employed, or a piece of useless linen or calico, which shows the burning mark, if the heat is too great. The method of using this iron is too simple, and too generally known, to need minute description. Be careful in ironing lace, ribbons, or any long narrow strips, not to stretch them out of the straight line; but do them slowly, in a straight line, and evenly; and with the point of the iron press out every gather separately. Always iron lace and needle-work on the wrong side. In ironing collars, do them first lengthways, and then cross-ways; and take care not to stretch one half of the collar larger than the other. In ironing a night-cap, do the crown first, and then the border; lastly, the strings and bands. When sheets and table-cloths are ironed, instead of mangling them, they should be ironed double, with a large iron pressed on them hard and heavily. All coloured things must be done with an iron rather cooler than for white clothes, as too great a heat will injure the colours. Iron them always on the wrong side, wherever the manner in which they are made will allow it. When about to iron a dress, if there is not ample space on the table, set a chair in a convenient place to receive the sleeves or any part that may hang down, so as not to let them touch the floor. Begin at the body; next iron the sleeves, and then the skirt, commencing at the top or upper part. A skirt-board is a very useful article. It should be made wide at the bottom, narrowing gradually towards the top. It can be obtained at shops where wooden ware is sold; or a carpenter can be directed to make one. Cover it first with blanketing and then with sheeting, both

sewed tightly and smoothly over it. This board is to slip into the skirt of the dress, which may thus be ironed without a crease. Puffings or gatherings in the sleeves should be folded or creased in half, along the middle, and ironed out like a flounce or ruffle. In ironing petticoats, double them from the two sides, and not behind and before; as that will make a fold down the front which will stand out awkwardly when worn. When ironing a shirt, begin at the bosom; then do the collar, then the sleeves, and lastly the back. A small board, on a similar plan to that recommended for the skirts of dresses, will be found very useful to slip under the bosoms of shirts when ironing them. Whenever a thing is begun, iron it as fast as possible (provided always that it is done carefully), and avoid quitting the table while the article is unfinished; for if it is left there is danger of its becoming so dry that it will be impossible afterwards to iron it smoothly. The heat of the iron should always be ascertained before it is used, by trying it on some old useless linen; but if by neglect any linen should be scorched, the discolouring should be removed immediately (see next paragraph).

To Restore Scorched Linen.

1045. If linen has been scorched in ironing, and the mark has not gone entirely through so as to damage the texture, it may be removed by the following process:—Take two onions, peel them, slice them, and extract the juice by squeezing or pounding; then cut up half an ounce of white soap, and two ounces of fuller's earth, mix with them the onion-juice and half a pint of vinegar. Boil this composition well; then spread it, when cool, over the scorched part of the linen, and let it dry on. Afterwards wash out the linen.

The Italian-iron.

1046. The Italian-iron (*fig.* 105 G) is employed to iron all large frills with full round plaits, each of which is placed upon the end of the iron with a finger and thumb of both hands, and slightly moved from side to side at the same time.

The French-iron.

1047. The French-iron (*fig.* 105, F) resembles an oval mushroom in shape, and after being heated in the ironing-stove it is placed upon the board, and then the lower parts of the insides of sleeves, and similar articles, are held in the two hands, and strained smoothly over it. It is intended for such parts as cannot be well ironed with the flat-iron

on the wrong side, and which would not look well if ironed on their right side, on account of their being worked or embroidered.

Gaufering.

1048. The Gaufering-iron (*fig.* 105 E) consists in a pair of light tongs, by means of which small frills are fluted, presenting an appearance somewhat resembling the large ones ironed with the Italian-iron; but much smaller and more neat. The frill, wrong side upwards, is held on the edge of the ironing-cloth with the left hand, and then the right, taking the gaufering-iron, properly heated, seizes hold of the frill well in the gathers with the left blade under and the right over it, after which, with a slight twist from left to right, two flutes in opposite directions are made by one action, the fingers of the left hand pressing the adjacent part of the frill against the cloth, and thus resisting the twist of the iron, and causing it to have a due effect in smoothing and rounding the flutes. As these irons cool very rapidly, two or three must be kept heated, placing them on the ironing-stove.

Crimping.

1049. The crimping machine (*fig.* 105 H) is intended to crimp frills rapidly, when aided by heaters inserted as in an Italian-iron. The two grooved cylinders are rotated by the handle; and, in using the machine, a frill, or even a plain piece of muslin, drawn between their teeth, while it is in a damp state, and after being starched on the other side, comes out well crimped, and presents a much more even and regular appearance than if the process was done with a small knife in the hand, which is the simple substitute for the machine.

Mangling

1050. Is adopted for things without irregular make, such as sheets, table-cloths, napkins, pocket-handkerchiefs, &c. Those things which have buttons, as drawers, are very apt to have them broken in the mangle, and, therefore, by many people are kept out; but if the mangling cloth is pretty thick they will generally escape. The mode of using this machine is partially described at paragraph 1021. The art consists chiefly in laying the clothes smoothly upon the cloth, and in arranging them in such a way that those of equal substance shall come together, so that the surface shall not be rendered irregular. Most articles are folded two or three times, and look better when so arranged than they do when put in the mangle in single folds.

Beyond this, it is only necessary to roll them evenly about the rollers, and lay them in the mangle.

Sect 2.—Cleaning.

1051. Many articles will not bear washing in the ordinary way, in consequence of their peculiar texture or colour; such as silk ribands, crêpe, and some similar fabrics, which will be here alluded to *seriatim*. The following is an admirable application, which has a wonderful effect in restoring silk fabrics, and ought to be universally known. I am not aware of its chemical composition, but I can answer for its success:—

1052. Benzine-Collas, sold in bottles at one shilling and threepence and five shillings each (to be had of all the respectable chemists throughout the United Kingdom and the colonies, and of A. Stringer, Depôt, 61, Piccadilly, Manchester). It destroys all spots produced by greasy substances, such as oil, butter, suet, pitch, tallow, new paint, grease on furniture or clothes, caused by the friction of the hands or the head; on all kinds of silks, satins, ribands, furs, velvets, or other fabrics, whether valuable or not; and it improves the lustre without injuring the most delicate colour. The smell, which is not disagreeable, is rather strong when used, but it disappears in a few minutes without leaving any traces. Benzine is also used for cleaning gloves, without changing the colour; to dilute colours mixed with oil; also to wash painters' brushes (for the last purpose nothing can be compared to it); and to remove all spots from paper. Benzine is the only liquid which is capable of removing all greasy spots from pictures, drawings, plans, and precious papers. This liquid can be kept for years without losing its good qualities. Benzine is a certain preventative of moths in furs.

1053.—Directions for Use.—Place a piece of linen of several folds on a table to act as a sponge in absorbing the benzine as it penetrates, and stretch the article greased on the linen, taking care to remove any dust; then take a piece of cotton or flannel, dip into the benzine and rub the soiled part well, after which dry with blotting paper or fine linen, and keep moving the linen underneath. The benzine ought to be applied in a circular direction, and care must be taken not to leave off until the liquid evaporates; then expose the article to a good current of air. It is not necessary to unstitch the seamings to remove any spots.

To Clean Kid Gloves.

1054. This is a simple operation, easily effected. Place the glove upon a piece of clean paper, or a hand of wood, and rub it with some cotton saturated with the benzine. The application of the benzine in the cleaning of gloves, is one of the most curious and the most economical, as it can be applied till the glove is entirely worn out, and on gloves of all colours; some gloves retain the odour of the benzine longer than others, but exposure to the air will soon carry it off.

To Remove Spots of Grease from Pictures, Drawings, Plans, and Other Valuable Papers.

1055. Place some blotting-paper under the picture, saturate some cotton with the liquid, hold it on the greasy spot one minute, and dry up with blotting-paper. With a fresh piece of saturated cotton, rub slightly in circles, until the liquid evaporates. It is important to know that the benzine is a neutral body, and has no action on silks or colours. It only dissolves wax and greasy bodies, and therefore can be applied without danger to precious papers.

To Renovate Crepe.

1056. To get the creases out, lay it between sheets fresh from the mangle; or, strain it tight, and pass it over the steam of a kettle, keeping it perfectly stiff and smooth till it is again dry.

To Clean Silk Dresses.

1057. Mix six ounces of strained honey with four ounces of soft soap, then add to it a pint of gin or whisky. The dress must be entirely taken to pieces, then each piece must be spread flat on a table, and brushed over with the mixture, first on one side, then on the other. Use a clothes-brush for the operation, and brush lightly, and always straight down the silk. To rinse the silk, it must be dipped into three different waters, without wringing. Roll each breadth in cloths, then, while still damp, iron it on the wrong side with a cool iron. This will answer for all colours except blue or green.

To Clean Silk or Ribbon.

1058. Half a pint of gin, quarter of a pound of soft soap, two ounces of honey. Dissolve gradually, then with a brush scrub both sides,

rinse through two waters, roll in cloths breadth by breadth, and iron whilst damp. This will answer admirably with every colour except blue and green.

To Clean Black Silk.

1059. To a sufficient quantity of ox-gall add enough of boiling water to make it warm. Spread out the silk on a large kitchen-table, and dipping a clean sponge in the gall, go over the whole of the article with it, on both sides. Then squeeze it well out, and repeat the application with the sponge, having added more boiling water to the gall so as to heat it again. Rinse the silk in clear cold water, and repeat the rinsing (changing the water each time) till the last water appears perfectly clean. Then stretch it, and dry it quickly in the air, and afterwards pin it out on a table. To give it the consistence of new silk, dissolve in boiling water a little glue or gum arabic; mix it with sufficient cold water, and sponge the dress well all over with it, This must be done on the wrong side. Then dry it, sprinkle it slightly, and roll it up tightly in a towel; let it lie a few hours, and then iron it, taking care that the iron is not too hot, as silk scorches very easily. Unless the silk is of very good quality, it will not be worth while to take the trouble of cleaning it. Previous to cleaning a black silk dress, rip the skirt from the body, and the sleeves from the arm-holes.

To Wash a Black Woollen Dress.

1060. Fold it neatly, and put it in a large pan of cold rain water. After lying all night, rinse it out, shaking it up and down in fresh rain water. When it has dried sufficiently (*i. e.*, remaining damp), iron it; turn the dress, and iron it lightly as you would muslin, *not* damping it.

To Clean and Renovate Coloured Woollens, Broad-cloth, Merinos, &c.

1061. If there are any grease-spots in broad-cloth, merinos, &c. remove them with spirits of turpentine, rubbed in with a coarse woollen cloth, and dried with a clean piece of the same; then take a hard brush, and with soap and water brush every part at all stained or discoloured, drying carefully with a piece of woollen material, and not using more water than necessary. After this, take a sponge, dip it in some stale small-beer, and squeeze it nearly dry, in which state rub

the whole surface of the cloth with it, using force enough to make it enter the texture. If any part is very threadbare, the surface may be raised with a teazle-brush, so as to have a tolerable nap again. Lastly, with a cool iron and a board (a tailor's goose is the proper thing), iron all the surface, when a gloss will be given equal to new, if well managed; or too high, if overdone.

General Scouring Spirit.

1062. Pyroligneous ether, one ounce; essence of lemon, three drachms. Mix. Moisten the grease-spot in silk or cloth well with this mixture, and rub till it disappears.

CHAPTER XIV.—MISCELLANEOUS RECEIPTS FOR STORE ARTICLES.

1063. The following receipts for articles to be kept in store will be found generally good of their kind:—

To Loosen Stoppers of Glass Bottles.

1064. Procure two pieces of soft wood, such as deal, and of the size of a common ruler, but with angular sides. Then, taking the bottle in the left hand, press one of the pieces against the left-hand side of the stopper, with a slight tendency upwards; keep this pressure up, and during its continuance tap the stopper smartly with the other piece in the right hand, but at the same time not so strongly as to break the stopper. In a very few minutes every stopper, however firmly fixed, gives way, and with proper care there is not the slightest risk of breakage, the safety depending upon the counter pressure by the left hand. In this way I have never failed, and on one occasion succeeded in removing a stopper from a decanter which had confined half a bottle of wine for more than twenty years, defying the efforts of a great number who had tried their hands.

Hair Grease.

1065. Melt half a pound of lard and six ounces of olive oil in a jar placed in hot water; when nearly cool add about two drachms of essence of lemon, oil of lavender, or any other perfume, and then pour it into glass bottles or earthen pots.

Another kind.—Mix fresh beef-marrow and carefully-prepared neat's-

foot or trotter oil in equal proportions, melt in a water bath and decant, leaving the dregs behind; after which, when nearly cool, the scent is to be added as above, and the whole stirred till quite set.

A Highly-preservative Tooth-powder.

1066. Take of prepared chalk and washed sulphur, of each one ounce; powdered myrrh and armenian bole, of each two drachms. Mix.

Another, but not so Good.—Reduce to an impalpable powder half an ounce each of charcoal and orris-root, two drachms of cuttle-fish bone, and one drachm of myrrh.

Bandoline, or Fixatrice.

1067. An ounce of the seed of quinces to be boiled in three pints of water till reduced one-half, then strain it, and add a few drops of any essence to perfume it; keep it in wide-mouthed well-corked bottles.

A Good Wash for the Hair, or Roughness of the Skin.

1068. Take of Belmont glycerine one ounce, oil of rosemary half a drachm, proof spirits one ounce, honey half an ounce, lavender-water half a pint; mix the oil of rosemary with the honey and spirits, and add the lavender-water gradually, shaking them well up; then put in the glycerine and cork.

To Prevent the Hair Falling off.

1069. Apply a little of the following lotion to the roots of the hair two or three times a week:—Spirit of turpentine, trotter or neat's-foot oil, of each one ounce, with the addition of thirty drops of acetic solution of cantharides.

To Set Pencil Drawings.

1070. Dissolve isinglass in spirits of wine, and a small portion of it put into water forms a good fixing for pencil drawings. Also, a weak solution of gum arabic in water, as strong as it can be without in the least *glazing* the paper

To Set Chalk Drawings.

1071. Take eight ounces of highly rectified spirits of wine, one drachm of camphorated spirits of wine, two drachms of volatile spirits of rosemary, and two drachms of the whitest resin, powdered. The

back of the drawing to be moistened with this throughout, as it somewhat changes the colour of the paper. The brush had better be well-washed afterwards.

A Scent Jar.

1072. Gather rose-leaves on a very fine day, and, if you have them, prefer the damask roses. Lay them in a large vessel, and throw in a little common salt to every layer of roses; then of rosemary-leaves, lavender flowers, and knotted marjoram, take two handfuls of each, with a few bay-leaves. Add any other sweet flowers approved, or make it entirely of roses. Put in about a quarter of a pound of bay-salt, pounded, one ounce of orris root sliced, one ounce of cloves, one ounce of cinnamon, one ounce of gum-benjamin and storax, and one quarter of a pound of angelica root, sliced. When the ingredients are mixed, cover the jar close; take off the cover when wanted, and the scent will be fine.

Toilet Articles:—Pomade Divine.

1073. Take a pound and a half of beef marrow, put it into spring water ten days, changing the water twice each day; then drain it, put it into a pint of rose-water for twenty-four hours, and drain it in a cloth quite dry. Then add storax, benjamin, cypress, and orris, of each one and a half ounce, half an ounce of cinnamon, two drachms of cloves and nutmeg, all finely powdered, and well mixed with the marrow. Then put it into a pewter vessel with a top that screws on, and over that a paste, that nothing may evaporate. Hang the vessel in a copper of boiling water, and let it boil two hours without ceasing; then put it through fine muslin into pots for keeping, and when cold cover it closely. If a pewter vessel is not at hand, a stone jar, with a paste between two bladders, will do.

Another Receipt.—Take four pounds of mutton suet, one pound of white wax, an ounce and a half each of essence of bergamot and essence of lemon, and half an ounce each of oil of lavender and oil of origanum. Melt the suet, and, when nearly cold, stir in the other ingredients; the origanum has considerable power in stimulating the growth of the hair.

Cold Cream.

1074. Take a quarter of an ounce of white wax, and shred it into a basin, with one ounce of almond oil. Place the basin by the fire till

the wax is dissolved; then add very slowly one ounce of rose-water, little by little, and during this beat smartly with a fork, *to make the water incorporate*, and continue beating till it is accomplished; then pour it into jars for use.

Another Receipt.—Take of best lard one pound, spermaceti four ounces, melt the two together, and add one ounce of rose-water; beating it as above directed.

Red Lip Salve.

1075. Take of white wax four ounces, olive oil four ounces, spermaceti half an ounce, oil of lavender twenty drops, alkanet root two ounces. Macerate the alkanet for three or four days in the olive oil, then strain and melt in it the wax and spermaceti; when nearly cold add the oil of lavender, and stir it till quite firmly set.

An Excellent Lip Salve.

1076. Four ounces of salad oil, two ounces of white wax; one glass of port wine; half an ounce of gum benzoin, a quarter of an ounce of alkanet root, half an ounce of raisins and a few slices of sour apples. To be gently simmered in a pipkin till all is dissolved.

Hungary Water.

1077. To one pint of proof spirits of wine put an ounce of oil of rosemary, and two drachms of essence of ambergris; shake the bottle well several times, then let the cork remain out twenty-four hours. After a month, during which time shake it daily, put the water into small bottles.

Honey Water.

1078. Take a pint of proof spirit as above, and three drachms of essence of ambergris; shake them well daily.

Lavender Water.

1079. Take a pint of proof spirit as above, essential oil of lavender, one ounce, essence of ambergris, two drachms; put all into a quart bottle, and shake it extremely well.

Eau-de-Cologne.

1080. Essence of bergamot, one and a half drachm; essence of lemon, one and a half drachm; essence of orange-flowers, one and a

half drachm; oil of lavender forty drops; tincture of benjamin, one drachm; oil of rosemary, two drops; proof spirit, one and a half pint.

Or, Essence of citron, two drachms; essence of bergamot, two drachms; essence of cedrat, one drachm; essence of lavender, half a drachm; essence of orange-flowers, ten drops; tincture of ambergris, ten drops, tincture of musk, half a drachm; tincture of benjamin, three drachms; otto of roses, two drops; proof spirit, two pints. Mix and filter.

FOR SCURF ON THE HEAD.

1081. Bruise a branch of rosemary, pour one pint of boiling water over it, and use it warm every morning. This will do for several times.

ECONOMICAL HAIR WASH.

1082. One ounce of borax, half an ounce of camphor; powder these ingredients fine and dissolve them in one quart of boiling water. When cool, the solution will be ready for use. Damp the hair frequently. This wash most effectually cleanses and beautifies, strengthens the hair, preserves the colour, and prevents early baldness.

AROMATIC VINEGAR.

1083. Take of camphor half an ounce, reduce it to powder with sufficient proof spirit; strong distilled vinegar six ounces. Mix.

Another and superior Receipt.—Dissolve two ounces of camphor, two drachms of oil of cloves, eight ounces of rectified spirits of wine, then add two pints and a half of strong distilled vinegar.

THIEVES' VINEGAR.

1084. Take of dried rosemary tops and dried sage leaves, of each one ounce, dried lavender flowers half an ounce, cloves fifteen grains, and distilled vinegar one quart; digest for seven days, then press and filter.

PASTILLES (COMMON.)

1085. Gum benjamin, one pound; cloves, half an ounce; cinnamon, two drachms; a stick of collanus, and mucilage enough to make the parts stick together. Then make into shapes and dry.

A better Receipt.—Benjamin, two ounces; cascarilla, one drachm;

myrrh, half an ounce; oil of nutmeg and oil of cloves, of each fifteen drops; nitre, one drachm; charcoal, one and a half ounce; mucilage, enough to make into a mass; then divide into shapes and dry.

A Remedy for Chapped-hands.

1086. Glycerine soap, when properly prepared, is a good remedy; but the Belmont glycerine, which is entirely devoid of smell, either plain or scented, is a far better application when rubbed on immediately after washing and before going to bed.

To Preserve Sheep Skins for Mats.

1087. Dissolve one pound of alum and one pound of salt in a gallon of water. Put the skin in soon after it is taken from the sheep, and let it soak twenty-four hours. Then nail it on an old door, skin uppermost, till quite dry. Line it with a piece of old carpet after cutting it straight, to prevent the possibility of greasing the floor.

Black Ink.

1088. Take a gallon of rain or soft water, and three-quarters of a pound of blue galls, bruised; infuse them three weeks, stirring daily. Then add green copperas and logwood chips, of each four ounces, six ounces of gum arabic, and a wine-glassful of brandy.

Substitute for Eggs.

1089. The following to be used in place of eggs, when scarce, for plum pudding or cake:—One ounce each of carbonate of ammonia and carbonate of soda dissolved in a pint of water, and kept closely corked. A dessert-spoonful of this fluid is sufficient for a pint basin of pudding, &c.

THE END.

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